660.5 v. 23 pt. 2

# THIS WEEK'S National Petroleum NEWS

## Coming Meetings

*American Chemical Society*, Indianapolis, Ind., March 30 to April 3.

*Federal Oil Conservation Board hearing*, Washington, D. C., April 9.

*American Oil Burner Association*, Ben Franklin Hotel, Philadelphia, Pa., April 13 to 18.

*American Petroleum Institute*, division of refining, semi-annual meeting, Hotel Statler, St. Louis, Apr. 15, 16.

*Tennessee Oil Men's Association*, Peabody Hotel, Memphis, Tenn., April 22.

*National Petroleum Association*, Hotel Cleveland, Cleveland, O., Apr. 23, 24.

*American Petroleum Institute*, Central Group on Automotive Transportation, Adolphus Hotel, Dallas, Tex., April 27, 28.

*American Gas Association*, Natural Gas Department, Memphis, Tenn., May 11 to 14.

*American Oil Chemists Society*, New Orleans, La., May 14, 15.

*Natural Gasoline Association of America*, Mayo Hotel, Tulsa, May 19, 20, 21.

*American Petroleum Institute*, Division of Production, Baker Hotel, Dallas, Tex., June 3, 4.

*American Society of Mechanical Engineers*, National Oil & Gas Power meeting, Madison, Wis., June 15 to 18.

*American Society for Testing Materials*, Chicago, June 22 to 26.

*American Institute of Mining and Metallurgical Engineers*, Petroleum Division, Houston, Tex., Oct. 2, 3.

*American Petroleum Institute*, annual meeting, Stevens Hotel, Chicago, Nov. 10 to 12.

**National Petroleum News**

**Vol. 23** **No. 13**

**Published by**

**The National Petroleum Publishing Co.**
**1213 W. Third St., Cleveland, O.**
**Tel. CHerry 7672**

**Branch Offices:**

**Tulsa, 904 World Bldg., Tel. 3-7132.**

**New York, 342 Madison Ave., Tel. Vanderbilt 3-3950 and 3-3951.**

**Houston, 2420 Gulf Bldg., Tel. Fairfax 6286.**

**Chicago, 35 E. Wacker Drive, Tel. State 4141.**

**Subscription rate $3.50 per year, U. S., Mexico and Canada; $5 Foreign countries. Current copies 10 cents; for back issues more than two months old 25 cents per copy.**

**All contents copyrighted, 1931. Trade Mark Registered U. S. Patent Office.**

**Member Audit Bureau of Circulations and Associated Business Papers.**

## General

Floyd Gibbons "Breaks" the Story of Sohio's New Gasolines ..... 27
East Texas Limit of 70,000 Barrels Daily is Asked in Proration Schedule..... 31
The Big Four Agree to Limit Imports of Petroleum from Venezuela..... 33
East Texas Producing Region 30 Miles Long, 5 Miles Wide..... 34
Water Drive in West Texas Fields Cuts Safe Production to Actual..... 35
A.P.I. Report of Refinery Operations Week Ended March 28 ..... 36
Review of Late Production News ..... 37
"Regular" Gasolines in U. S. Show 59 Average Octane Number..... 39
Trade Body Hears Oil Men for and Against the Code ..... 40
Natural Gasoline Men to Study Plant Problems and Economics ..... 41
W. R. McCain Elected President of Independent Oil Men ..... 41
Texas Corp. Market Outlets To Cover Principal Transcontinental Roads..... 43
Record Shows Failure of Proration to Stabilize Prices of Oil—*by Daniel T. Pierce* ..... 45
Proration, Properly Applied, Can be Used as Efficient Conservation—*by S. W. Collins* ..... 49
More Than 10,500,000 Acres Leased in West Texas..... 52
Production Control Theme of Meeting of A.P.I. Mid-Continent Section..... 53
U. S. Oil Supply and Demand in 1930 ..... 78

## Merchandising

Lube Tanks on Mezzanine Floor Save Space in Bulk Plant..... 81
Letters to the Editor Discussing the "Two-Gallon" Buyer ..... 82
Lincoln to Vote on Discontinuing Municipal Gas Station ..... 88
Jobbers in South Employ Supervisors to Help Operators Merchandise..... 91
Merchandising and Jobbing Ideas Marketers Are Practising..... 95

## Engineering

Instrument for Surveying Boreholes—*by Walton E. Gilbert*..... 57
Pyrolysis and Destructive Hydrogenation of Heavy Crude Oil Fractions—Part II—*By V. N. Ipatyev* ..... 61
Does Natural Draft Pay?—*by J. R. Darnell* ..... 67
Visiting Around the Refineries ..... 73
New Refining Patents ..... 74
Anti-Knock Gasolines More Necessary in England than in U. S.—*by R. A. Ogston* ..... 76

## Markets

Chicago, Gasoline Generally Steady ..... 101
Mid-Continent, East Texas Crude Posting Features Market..... 103
Refinery Price Tables ..... 102, 104, 105
California, Lower Prices Fail to Stimulate Buying ..... 110
Pennsylvania, Demand Generally Light ..... 111
Eastern, Gasoline Prices Recede 0.5 to 1 Cent ..... 112
Gulf, Cargo Prices Lower for All Products ..... 112
Wax, Prices Generally Unchanged ..... 112
Complete Seaboard Prices ..... 114
Tank Wagon Price Tables ..... 116, 117
Aviation Gasoline Price Tables ..... 117
Crude Oil Prices, All Fields ..... 119, 121

## Departments

The Editors' Viewpoint ..... 29
The Mid-Continent Skyline ..... 55
Our Industry ..... 56
On the Lazy Bench ..... 92
Oil Trademarks for Copyright..... 94
Foreign Opportunities ..... 113
Oil Company Finance ..... 122, 124, 126

*Photo by Blank-Stoller, Inc.*

THOMAS A. DINES, a director of the American Petroleum Institute, president of the Midwest Refining Co., and recently elected president of the Utah Oil Refining Co., which is a subsidiary of the Midwest company, is one of the most prominent figures in the oil and gas industry in the Rocky Mountain states. He has headquarters in Denver, Colo.

As one of the original incorporators of the Midwest Refining Co., he has been its president and chairman of its board of directors since 1928. Previous to that he served as president from November, 1922 to June, 1926, resigning at that time to become chairman of the board of directors. On October 16, 1928, he was re-elected to the presidency, and with that office continues also as chairman of the board. Before his election to the presidency he served as vice president and treasurer.

NATIONAL PETROLEUM NEWS

*Published at*
**1213 W. Third St.**
**Cleveland**

*Branch Offices*
**Tulsa, New York, Houston, Chicago**

**Vol. 23** **CLEVELAND, April 1, 1931** **No. 13**

# Floyd Gibbons «Breaks» the Story Of Sohio's New Gasolines

CLEVELAND, March 30

STANDARD OIL CO. of Ohio is out after business this year of 1931 with two new gasolines, under new brand names, the result of a new manufacturing process, to be launched April 1 by a striking sales and advertising campaign.

The company has dropped the Red Crown brand name under which it has sold gasoline to the public in Ohio for perhaps a quarter century; just as it is dropping the Red Crown grade, which sold at regular prices, and its Sohio Ethyl, which it has sold for two or three years at a premium of three cents.

In its place it will sell "X-70" at regular prices and its premium ethyl treated motor fuel will be "Extra-Ethyl."

The copyright "X-70" comes out of the refinery. It is the engineering department's symbol for the new gasoline and it was decided to use it as the official name for the new product because it is cryptic, easily remembered, and is far removed from any similarity with names of other branded gasoline sold in Ohio.

The name does not mean, the company points out, that the anti-knock rating of the new gasoline, as designated by octane number is 70. The octane number is said to be above 70 now and subject to change as automotive conditions warrant.

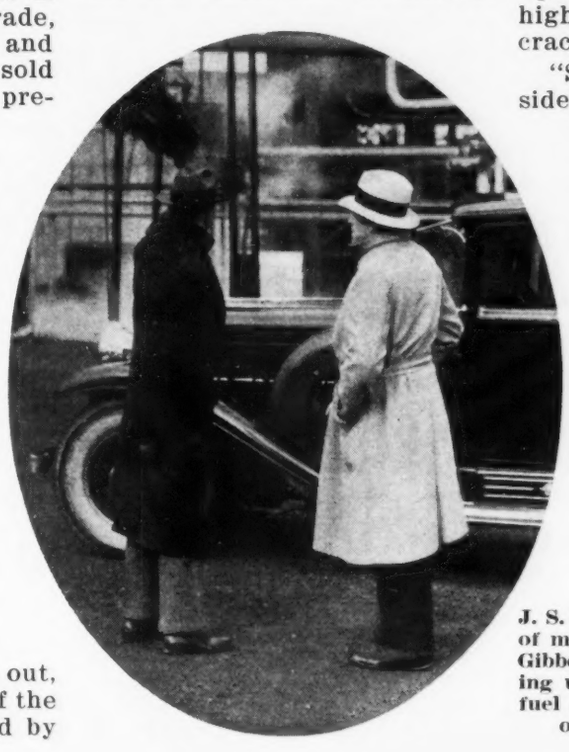
The average octane number of motor fuels sold in Ohio at regular prices during recent months is said to have been 58 and the octane number standard for Ethyl gasoline at present is 74.

Details of the manufacture of this new motor fuel are not yet disclosed by the company, patents for the new process not being complete. The process is carried out in Tube and Tank units, which has been used by the Standard of Ohio for several years.

The manufacturing process, which was developed after 18 months of research, is presented to the public as "heat tempered." Pressures are used in excess of 1000 pounds to the square inch and temperatures higher than used so far in cracking coils.

"Sohio takes what was considered, heretofore, a finished gasoline and subjects that untempered gasoline to an additional tempering treatment by terrific heats —and out comes a gasoline with a new edge—a keener gasoline of flashing performance quality," is the way the company describes it.

The new gasolines were to be officially announced the night of March 31 in a special radio broadcast from stations WTAM, in Cleveland, and WLW, in Cincinnati, by Floyd Gib-



**J. S. Harrison, vice president in charge of manufacturing, points out to Floyd Gibbons, on the right, one of the cracking units where the new X-70 motor fuel is made, at the Standard Oil Co. of Ohio refinery in Cleveland**

**Vice president Harrison and Gibbons inspect the piping system of one of the new cracking units at the Ohio Standard refinery**

bons, world famous journalist and headline hunter. However, for some time before, dealers and agents were being prepared to handle the new products, and the interest of the public was being aroused through a teaser advertising campaign. About the middle of March billboards in Ohio began to appear with the message "X-70, You'll like it!" blazoned in gigantic letters in red and blue.

A week later, Ohio newspapers began to carry ads of various sizes, each suitably illustrated. "Barbers will like X-70. Coming soon." "Scotchmen will like X-70. Watch for it." Bridge fiends, Duck hunters, Budget watchers, Freshmen and Seniors, Debutantes, Private secretaries, Traffic cops, Women who shop, and so on, were in turn admonished to watch for X-70.

Another week and it was announced that Floyd Gibbons would appear on the radio to solve the mystery of X-70.

About the same time the Red Crown globes on gasoline pumps at Standard Oil stations disappeared under canvas bonnets, which carry only a big question mark. April 1 they will reappear as X-70 globes.

On April 1, following the announcement by Gibbons over the radio the night before identifying the new gasolines with the mysterious X-70, over 100 newspapers over Ohio will carry 13-column ads, almost two pages, featuring Floyd Gibbons' story of the two new products on one full page and carrying the announcement that the two new gasolines are ready on the other five columns.

The page with Gibbons' story is made up like a feature news page and carries a big picture of Gibbons in the right hand upper corner. "They've Put a New Edge on Gasoline," is his headline for his story.

"Maybe it's a better five-cent cigar that the country has needed this last couple of years. But the lads up in Detroit—the boys who design and build our automobiles—they say different," he starts off his story. He goes on to say the car manufacturers had been stopped in increasing compression ratios because of lack of suitable anti-knock fuels. Then he heard, he says, that the Standard Oil Co. of Ohio had something up its sleeve, "and that carload after carload of new boilers and jigglers and bubblers were being set up in the historic old Sohio plant in Cleveland—the plant where the art of oil refining was born and brought up." So he goes on to tell of his visit to the plant, of which the following is typical:

"Imagine leaning nonchalantly against a tall silo-like tube

**One of the mysterious billboard ads which the Standard of Ohio used throughout Ohio for two weeks previous to the announcement that X-70 was its new motor gasoline**

# The Editors' Viewpoint

## Financial Soothsayers a Curse to Industry

By Warren C. Platt

EDITOR NATIONAL PETROLEUM NEWS

IT IS about time, we believe, for business to rise up and fight the practice of statistical soothsayers who peddle their prophecies on the state of a given company's stock as to when it should be bought and when it should be sold.

In the oil industry, this is a subject for the American Petroleum Institute to consider and, we believe, to consider in conjunction with other national business organizations including the U. S. Chamber of Commerce.

The fundamental indictment against these statistical soothsayers lies in the count that whether they predict rightly or wrongly, by the very nature of the speculating, mostly by ignorant "investors," their predictions will largely come true, especially when on the bear side of the market. Their subscribers, to a large extent will do what they are told; otherwise, why pay $100 a year or more for the "service"?

Another count that might well be in the indictment is that these services tend to create more speculation in stocks than downright investments. No business enterprise can guarantee to run on indefinitely making comfortable earnings. There always have been and always will be periods when earnings will be down, even losses suffered, due to unforeseen changes in business, new competition, perhaps even a weakening management. Reserves are, or should be created, in such form as to insure the carrying on of the business during these bad periods.

What a business needs during such periods is investors, not speculators—friends not enemies. People should put their money in the business because they believe in the business and in the men running it. They should keep their money in that business, aiding those men in its direction and giving them confidence and hope during times of depression.

Such friends of business are the ones who have built up American business enterprises. They saw the future and put in their money and stuck through thick and thin. In many cases they lost but in many more they won and won richly, as they deserved.

What have we today? A class of "investors" who are "in" and "out of a stock" on a few points rise or decline; a class that is drinking in the dope from newspapers and dope sheets issued by financial clairvoyants who, if they operated in any other way, would be closed up by the police departments of our cities on the strength of ordinances forbidding the practicing of clairvoyancy, or fortune telling.

These "investors" contribute nothing to business. They just take away, in the form of dividends, and in depreciating the value of the stock when some dopester says sell. They don't know, nor do they care, whether a company makes oil or kids' kites, whether it is poorly manned or well manned, whether some changes are under way that will put it in a good earning position, or whether it was hit by a wind that could not be foreseen.

No, these "investors," on the "advice" of the soothsayers, buy when the prophet says buy and sell when he says sell. The result is their buying tends to push the market price for a stock up higher than it should be, as was the case before the crash a year ago. No one could tell "investors" a thing then, but the soothsayers, and the soothsayers did not say sell, at least not very loudly or clearly, and we scanned some of the dope sheets.

The selling of these "investors," when so advised, is at a time when the most injury can be done the worthwhile holders of the stock, just as now. The dopesters say sell and stocks are depressed more than they should be and the fair time "investors," reading the dope sheets and understanding not, run around and by their talk of poor earnings, such-and-such a stock being off so much, and all, lend every aid possible to the hue and cry that makes for the present depression.

WE DO not mean to close our eyes to facts and a clear understanding of them, but we do not believe in people making a business living off of speculation, that damages American business. We do not believe that these dopesters, no matter how high minded they pretend to be, are any better, any more moral or honest, or more of a benefit to the public, than the individual who runs a straight faro, chuck-a-luck, book making or any other game of chance. In fact, we wonder if the financial dopesters are as honest as these gentlemen of the green tables; for the latter do not undertake to advise you on your play. They tell you frankly you may win or lose but that it is all up to you. The financial fortune

tellers cloak their business as with a religion and give you to understand, for a handsome fee, that they will lead you to financial salvation.

All this criticism is prompted by a detailed report just received from one of the most prominent "statistical houses" which sells its financial dope to the general public for millions of dollars a year. This particular dopester has undoubtedly done, in his estimation, a good job of sizing up the oil situation and this stuff seems to be reasonably accurate as to facts.

But the trouble is, at this time when oil stocks should not go any lower, he is advising that they be sold, practically every last one of them, the Standards, Gulf, The Texas Co., Barnsdall and many others. Obviously there should be—if these dope services are believed at all—a flood of selling at a time when oil stocks are about the best buy in history, but particularly at a time when oil companies need the confidence and support of real honest-to-God American investors.

Listen to the reasons given why these dupes of the dopesters should sell. It is not because these oil companies are not well managed, not because they are not well financed and even making money, but simply and solely because these "investors" can take their money and play it on another stock. In other words, they are to put their chips on the blue instead of the red, or on Molly MaGuire instead of Molly Smith of horse fame.

We venture that most of these "investors" hardly know whether oil comes out of the ground or out of the sky, any more than they know what a roulette wheel looks like; but we are certain they would be terribly "shocked" if invited to play real money "for keeps" on such a gambling device, entirely aside from the fact that there might be some painted, but good looking ladies there to help them play their money.

Seriously though, it is an everlasting crime when investment in a worthy business is brought down to the level of a darky crap game, at a time when American business needs honest and courageous and intelligent investors, who invest because they believe in America and its enterprises and have faith and confidence in the men who run them.

The American Petroleum Institute can do great good for the oil industry by considering this subject at this time.

## Floyd Gibbons

(*Continued from Page* 28)

—and being casually informed, while you're lolling there, that your backrest is practically nothing more or less than a cannon, with the equivalent of a big gun's charge of high explosive seething and stewing inside, raging to get at you"—

"You heard me—gas flames! Open gas flames, sixteen hundred degrees hot, whooping away on that job of heat tempering—right where they'd have crowned you with a monkey wrench if you started to light a cigarette.

"What I mean, it was like strolling through a cage of hungry lions and tigers. Or being face to face with a red-eyed elephant that you once fed chewing tobacco to.

"That was the sensation. Not a passing sensation either. It stuck right along. I never once looked up at the sky without finding myself figuring what section of it I'd bust through if something went just a little bit wrong."

Along with the newspaper announcements of April 1, billboards carried, in mammoth letters, "Sohio X-70, Heat Tempered, Best Non-Ethyl Gas—Regular Price."

Full page advertisements April 9 will carry another of Gibbons' stories on the new gasoline and April 16th papers will carry still another.

"My Adventures with the Sohio Molecule Busters," a booklet with the newspaper stories and other material will be distributed to the public through Sohio stations.

In preparing dealers, agents and station men for the new products, meetings by groups were held in Cleveland the last week in March. An industrial talkie was shown the men, in which Floyd Gibbons and J. S. Harrison, vice president in charge of manufacturing for the Standard of Ohio, on the screen, told of the new gasolines and their characteristics. Other department heads, in person, told the men of the advertising and sales campaigns being carried on in connection with the launching of X-70 and Extra Ethyl.

### Crude Buyers Will Pay Gross Production Tax

TULSA, March 28.—Legislation to change the manner of collecting the 3 per cent gross production tax has been signed by the Oklahoma governor. The law provides that the tax shall be paid monthly, instead of quarterly as heretofore, and that it shall be paid by the oil purchasing companies.

## Asks Increased Outlet For Oklahoma City

(By Telegraph)

TULSA, March 31.—The Sinclair Oil and Gas Co., March 30, took its war on oil proration in the Oklahoma City field to Federal Court when it filed at Guthrie, a petition for an injunction asking that the Oklahoma Corporation Commission be forced to fix the allowable flow from the Oklahoma City at 150,000 barrels daily instead of present maximum of 125,000 barrels.

The petition does not attack the constitutionality of oil conservation laws of 1915 previously upheld. The action Sinclair attorney's stated "is rather to compel the commission to exercise its power to fix the allowable production in accordance with the market demand."

The petition reviews the action of the commission in increasing the allowable flow on March 4 to 150,000 barrels after a hearing, the order to become effective March 10, only to hold in abeyance this order "at the express wish of the Governor," pending outcome of hearings in oil states committee conferences.

# East Texas Limit of 70,000 Barrels Daily Is Asked in Proration Schedule

By Paul Wagner
N. P. N. STAFF WRITER

AUSTIN, Tex., March 30

HEARINGS before the Texas Railroad Commission on a continuance of proration of crude oil production in Texas generally, and its extension to the new East Texas district, ended March 28.

The commission took the matter under advisement, after denying East Texas representatives, who made a strong fight against bringing this district into the state's proration program, a continuance of the hearing. The East Texans wanted the commission to hold further hearings in their territory.

An order of the state commission imposing proration on the East Texas area now appears certain, but the maximum allowable production to be fixed for the district remains uncertain.

Before the commission was a proposal of its central advisory committee of oil operators asking for statewide allowable production of 656,058 barrels daily in April; to be increased 5000 barrels daily each month until 686,058 barrels total is reached.

Included were 50,000 barrels daily allowable for East Texas, subject to increase May 1 of 5000 barrels and similarly each month thereafter until 70,000 barrels is reached.

In making way for East Texas in the proration fold, the committee proposed further reductions in previously prorated fields. The Gulf Coastal region would be curtailed from 152,350 barrels daily to 140,000 barrels; Yates field, of Pecos county, from 89,500 to 70,000 barrels and Big Lake field, of Reagan county, from 20,000 to 12,000 barrels. Both the last named are in West Texas.

The committee indorsed a proposal of the University of Texas to shut in entirely the nine deep wells producing from the 8200-8900 foot pay in the Big Lake field.

Minor adjustments were proposed for the Panhandle, Wichita Falls, Ranger and other districts.

**Telegraph Bulletin**

**HOUSTON, March 31.—Unofficial advices from Austin indicate the Texas Railroad Commission late today will issue an order prorating East Texas to a maximum daily allowable production of 70,000 barrels starting April 1, to be gradually raised to 100,000 barrels daily.**

**This is 20,000 barrels above recommendations of the operators' advisory committee, and would bring the total allowable for the entire state to 676,000 barrels on April 1.**

**Former Governor Dan Moody, counsel for the East Texas anti-prorationists, said he had instructions from his clients to enjoin any proration order made by the commission for this district.**

Chairman Robert R. Penn explained the Central Proration Committee had not received purchase nominations sufficiently intelligible to enable the committee to report the total of East Texas nominations.

After announcing that the Operators' Committee of East Texas had recommended this area be given an initial allowable production of 50,000 barrels daily he said, "We consider such a reasonable and fair allowable and so recommend."

Later, the East Texas Operators' Committee, headed by W. B. Hamilton, of Wichita Falls, as chairman, and Jake Hamon, Jr., of Ardmore and Longview, as secretary, presented a revised proposal direct to the railroad commission, recommending allowable output of 55,000 barrels daily the first 30 days; 75,000 barrels the second 30 days; and 90,000 barrels the third month.

Under the Hamilton plan the 30-mile long Gregg-Rusk district would be split into three areas, respectively known as the Lathrop area, in Gregg county, and Kilgore and the Joiner areas, in Rusk county. Details of the construction allowable as distributed to the three areas was not disclosed.

Still later, Lloyd Price, of Fort Worth, counsel for the Arkansas Fuel Oil Co., of the Cities Service group, announced his clients had worked out a plan with other Lathrop area operators and were willing to prorate there on a basis of 15,000 barrels daily the first month; the production to be increased 5000 barrels daily each month for two additional months.

Attacks by counsel for the East Texas Lease, Royalty & Producers Association against Chairman Penn and his central committee were transferred for the time being against Hamilton's group and Price's statement.

Former Governor Dan Moody, chief counsel for the lease, royalty and producers group, was coached in his attacks by Carl Estes, Tyler anti-proration leader, and part of the time by Pat Malloy, of Tulsa, anti-proration counsel for the Sinclair interests.

The lease and royalty group was attempting to lay the background for a court attack on proration in Texas generally, and East Texas particularly, should the railroad commission

issue its almost inevitable order for statewide application.

The hearing before the railroad commission was conducted as a court proceeding, but without rules of evidence applying. Witnesses were examined under oath and cross-examined, but the lack of court rules permitted frequent interruptions and much bandying of words.

Amazing patience of the railroad commission in hearing irrevalent questioning indicated a courteous attitude and kindly disposition of its personnel to the participants.

Among themselves, however, the commissioners were less friendly. Former Governor Pat Neff, who is at odds with Chairman C. V. Terrell and Commissioner Lon A. Smith, sat apart from the others and their only consultations were taken when some motion required canvassing of the commission members.

The legal status of the operators Central Proration Committee was under attack by Moody throughout his questioning, and the system of establishing ratable takings under the statewide program was also subject to his broadsides.

Moody wanted to know whether the conservation law provided for handling of conditions affecting conservation through the avoidance of physical waste.

In answering one oral barrage of Moody the former governor was told by Penn that the conservation law did not so provide, but the common purchaser bill he had signed last summer did. The law is designed to prevent discrimination between pipeline runs from wells and fields.

At one stage of the hearing, Penn asked to make a statement on recommendations of his committee for an appointive petroleum commission, a bill backed by Governor Sterling to create a new Conservative Commission of Texas is now before both houses of the legislature. This bill would take conservation duties away from the railroad commission and vest them in the new board.

"I have the highest regard for the members of this commission," Penn said. "We are fortunate in having men of such outstanding ability and integrity; but we should have an appointive commission in order to remove them from threats of political intimidation, such as you East Texans have made against them."

Moody asked: "Mr. Penn, don't you think these commissioners are above political intimidation?"

"Yes, I do," Penn replied, "but you East Texans apparently do not."

In connection with nominations for East Texas crude purchases as made to the Central Proration Committee, Penn said Humble Oil & Refining Co., had offered to take 25,000 barrels daily of prorated oil and the Magnolia Petroleum Co., had also offered to take 24,000 barrels ratably from producers.

That major oil companies are willing to pay better prices for East Texas crude under stabilized conditions than tank car shippers are paying in the field under present chaotic conditions was indicated in the Magnolia's making the first major company price posting, March 27.

The Magnolia applied the Mid-Continent gravity schedule of 40 to 67 cents a barrel to the district. Most all Gregg-Rusk production comes within the higher price brackets. Contract and posted prices of buyers for tank car shipments have ranged from 32 to 45 cents a barrel. Quantities of crude are known to have been offered for sale by producers for 25 cents under contract.

Mr. Penn read to the commission a telegram from Forrest D. Dorn, chairman of the conservation board of the Pennsylvania Crude Oil Association, in which Mr. Dorn put the entire blame for present price conditions on East Texas. Mr. Dorn said;

"The entire Appalachian crude oil production area is looking toward proration measure in new East Texas pool for the stabilization of the entire industry. The failure of the Kilgore and Lathrop and joiner producers to establish and conform to a conservation plan and scheduled production allowance would seriously demoralize the efforts of all other producing territories and would lose to the producing interests the impetus of months of laborious efforts and their results in stabilization.

"The Pennsylvania, Ohio, West Virginia and New York producing territory has been operating under a restriction of 50 per cent for a period of 10 months and has succeeded in withholding over 10,000,000 barrels of oil from the already over-produced market—the result being the present perfect balance between production and consumption. We strenuously advocate measures to induce the operators in the East Texas area to subscribe to proration adherence and to take their place with the rest of the industry in the sound structural establishment of the industry at large. Failure to adopt such a policy will mean nothing less than disaster for themselves and the entire oil production fraternity."

## To Test Application of Law To Tank Car Loading

(By Telegraph)

HOUSTON, March 30.—Test of the Texas common purchaser law to be made by Wichita Falls producing interests operating in the new East Texas district is to show whether the statutes provisions may be made equally applicable to trunk pipeline purchasers and operators of short gathering systems for tank car loadings of crude oil.

If interpreted as applicable equally to both types of purchasers then enforcement of the law would bring ratable takings from virtually all crude outlets in the Gregg-Rusk district and prove a definite influence toward stiffening proration.

Complaint has already been filed with the railroad commission by Orville Bullington, in behalf of the Federated Oil Co., of Wichita Falls, and a test suit in the courts was definitely announced as forthcoming.

Specifically the Bullington complaint is against the Humble Oil & Refining Co., which is producing wells offsetting the Federated's property at approximately 200 barrels daily. Federated wells are shut in for lack of outlet.

# The Big Four Agree to Limit Imports Of Petroleum from Venezuela

AUSTIN, Texas, March 26

THREE of four major oil companies which import 95 per cent of the petroleum reaching this country from abroad notified the Railroad Commission of Texas, March 25, that they had curtailed shipments or would do so at once.

Both the Gulf Oil Corp., and the Standard Oil Co., of New Jersey announced 25 per cent reductions in crude oil imports. Neither company imports refined products.

The Shell group announced readjustments in their exchanges of gasoline between affiliated companies and said this would enable them to reduce their imports "by at least 50 per cent for 1931, as compared with 1930."

No statement was forthcoming from the Pan American Petroleum & Transport Co., or its parent Standard Oil Co. of Indiana, but private advices in Austin were that the Indiana Standard might be expected to make some announcement of curtailed imports at any time.

Standard Oil Co. of New Jersey, by its 25 per cent reduction, effective April 10 for 90 days and thereafter in line with results attained, will bring its crude imports to an average of 45,000 barrels daily. In 1930, it averaged 60,000 barrels daily and in 1929 approximately 67,000 barrels daily.

Gulf Oil Corp., which said through P. O. Settle, of its Fort Worth legal department, that it was making a 25 per cent reduction, is known to have averaged about 60,000 barrels daily crude imports in 1930.

The Shell Companies imported approximately 5,000,000 barrels of gasoline in 1930. Its statement, signed by U. de B. Daly, of Shell Petroleum Corp., said:

"The position with regard to imports of the Shell Union group of companies, namely, Shell Union Oil Co., operating on the Pacific Coast; Shell Petroleum Corp., operating in the middle west and Texas; and Shell Eastern, operating on the Atlantic Coast, is as follows:

"1. The Shell Eastern is purely a marketing company and was organized to take care of the surplus production of the Shell Oil in California and Shell Petroleum on the Gulf Coast. As a matter of convenience and in order to simplify the necessary shipping arrangements an arrangement was made with the Royal Dutch-Shell, by which Shell Eastern draws a large part of its requirements of gasoline from the Curacao refinery of the Royal Dutch-Shell and in turn the Royal Dutch-Shell takes an equivalent quantity of gasoline from Shell Petroleum and Shell Oil for export.

"2. This arrangement is based on, and is being carried out on the basis of an exchange of naphtha, barrel for barrel, and in addition Shell Union sells considerable quantities of gasoline and casinghead for export, so that the net results of these transactions is that on balance the Shell Union exports more gasoline than it imports.

"3. In view of the request of the independent producers for a reduction of imports the Shell Union has perfected shipping arrangements by which its imports of gasoline will be reduced by at least 50 per cent for 1931 as compared to 1930.

"This will, however, entail supplying the Shell Eastern direct from California and the Gulf with an increasing quantity of domestic gasoline and, therefore, the available surplus of Shell Union for export will be reduced by these amounts.

"4. The Shell Union imports no Venezuelan crude into the United States and its only imports of crude are approximately 2000 barrels daily of Panuco crude which is imported for the manufacture of certain special grades of asphalt which it is impossible to manufacture from any domestic crude available to the Shell Union.

"5. While the Shell Union itself is not directly concerned in any operations outside the United States, either in Venezuela or elsewhere, I am authorized to state that in February, 1930, the Royal Dutch-Shell offered to reduce its production in Venezuela pro rata to any general reduction of crude production in the United States for 1930, as compared to 1929, provided that the other companies operating in Venezuela would agree to a similar restriction. This offer was not accepted at that time, but has been repeated since, and I understand Royal Dutch-Shell is still ready to restrict 1931 production on some similar basis."

**Bulletin**

**CLEVELAND, March 31.—Pan American Petroleum & Transport Co. subsidiary of the Standard Oil Co. of Indiana, one of the four large companies importing petroleum and its products into this country, will curtail its imports from Venezuela into the United States 23 per cent, and its production in Venezuela accordingly, for 60 days starting April 1. This was announced in New York, March 30 by R. G. Stewart, president of the company.**

# East Texas Producing Region 30 Miles Long, 5 Wide

AUSTIN, Texas, March 28

THE territorial scope of the Sabine Uplift producing region in East Texas has been extended by wells drilled northeast, west and southwest.

Northeast of the Lathrop discovery, in the Longview area of Gregg county, the district was extended a mile and a half to the No. 1 Church Lot test, of Ernest Eslick and others, in the Dolores Sanchez survey. When tested at 3600-3606 feet, the well made 180 barrels in 30 minutes through two four-inch flow lines.

One mile south of Gladewater, in the western part of Gregg county, a test of the Selby Oil & Gas Co., cored seven feet of oil saturated sand from 3529-3536 feet, extending the general Lathrop area five miles west of earlier producing wells.

Adjusted to surface elevation of 273 feet, the top of the sand was found 88 feet lower on the Comanchean Cretaceous shoreline structure of the uplift than was the producing horizon of the Lathrop discovery. The well was unfinished as this was written, but had shown sufficient promise as to insure its importance commercially.

A two-mile west extension of the south end, or Joiner area, carrying production across the Rusk county boundary into Smith county, was made by the Guy V. Lewis No. 1 Cook test. It has been showing saturated oil sand several days and is now at the point of completion.

Completion of the Lewis-Cook test insures a productive area at least five miles in width, east to west, in the Joiner area. Between it and earlier wells in the Joiner territory, a well of Demontrand and others on the Birdwell, in the M. J. Pru survey, proved the south end district is good for its best completions down-dip of the regional structure from earlier completions.

The Demontrand-Birdwell test flowed between 500 and 600 barrels hourly before shutting in for lack of storage in the face of no pipeline outlet for the oil. Sand was topped at 3598 feet and the test drilled to 3618 feet.

North of the Bateman discovery well, in the Kilgore area, Humble Oil & Refining Co. completed No. 2 J. N. Peterson, Isaac Ruddle survey, flowing 450 barrels the first hour and 850 barrels the second hour through casing using various size chokes. The test is producing from the largest sand body found at the lowest structural level drilled in the general area.

The Humble-Peterson test cored first sand from 3670-3679 feet; had a line break at 3679-3683 feet; more sand from 3683-3698 feet; sandy shale and lime alternately from 3698-3740 feet; more sand from 3740-3760 feet; then 10 feet of shale to 3770 feet.

Considered in connection with the well of the Burton Drilling Syndicate, on the Florey tract, west of the Humble's Bateman-Crim property,[1] the producing possibilities of the Sabine Uplift region now assume unmeasurable but admittedly great proportions in comparison with the great oil fields of the world.

It has been previously pointed out that the Burton-Florey well tested 400 barrels on a one-hour gauge at 3739 feet, or more than 142 feet down dip of the regional structure from the Humble's nearest well on the Bateman-Crim property; the Humble-Crim wells are 60 feet down dip from east edge wells, where production pinches out in thin lenticular sands against the old shore line.

With more than 200 feet of structural dip proved for production in the Kilgore area and the field there proved for more than three miles in present width the broader extension of the Joiner and Lathrop areas assumes added significance.

Only on the east, where production pinches out against the old Comanchean Cretaceous shoreline of the region have the district's possibilities been limited. The east-west width of the district may be found eventually to extend further west into Smith county from the Joiner and Kilgore areas; and similarly into Upshur from the Gregg extension near Gladewater.

Other completions made the last 10 days are tending to indicate the 30-mile long producing territory which extends from the Lathrop area, on the north, to the Joiner area, on the south, may constitute a continuous sand bank capable of amazing quantities of production.

The fact that reservoir pressures are low in comparison with many other producing regions of the past incline observers to the belief that rapid development would soon dissipate them and quickly turn the district into pumping well territory. In the meantime, however, the data disclosed from wells down the dip of the regional structure, where sand reservoirs thicken, cannot be discounted in terms of vast potentialities.

Substantial operators continue to hope for development measures that will insure against physical waste and dissipation of propulsive energies, such as present drilling has encouraged.

In its non-prorated condition and in the face of all crude withdrawals from the district being made in tank car shipments from the approximately 70 wells, the Gregg-Rusk production has climbed steadily.

March 24, the general district set a new high production record when it gave up 112,977 barrels. Production was then distributed as to areas as follows: Joiner, 40,302 barrels; Kilgore, 58,675 barrels; Lathrop, 14,000 barrels. All were capable of greater open flow production. Some wells were being flowed at their maximum, others were materially pinched and still others were shut in for lack of outlet.

[1] National Petroleum News, page 30, March 18, 1931.

# Water Drive in West Texas Fields Cuts Safe Production to Actual

By Paul Wagner

N. P. N. STAFF WRITER

AUSTIN, March 26

IN EMPHASIZING that proration potentials of such oil fields as the Yates area represent merely yardsticks for equitable withdrawals of crude, witnesses before the state railroad commission, March 24 and 25, discounted safe exploitation of West Texas territory at much higher levels than the wells are currently producing.

The Yates field in particular with its rated potential of 5,508,170 barrels daily from 401 wells, was described by Ray W. Richmond, Pecos county umpire, as safely exploitable at no more than 130,000 barrels daily.

Yates allowable production under proration, balanced with market demand, is now limited to 89,500 barrels, although the field was exploited for a period in 1930 at 130,000 barrels daily maximum.

"When we cut production from 130,000 to 100,000 barrels (prior to a further reduction to the present allowable) 10 wells were taken out of the 'water picture,'" said Mr. Richmond. "These wells thereafter made no water."

Parenthetically, some 50-odd wells in the natural water drive Yates field have shown small percentages of encroachment at one time or other, but generally on the edge of the structure just ahead of the constantly rising hydrostatic table that provides the main propulsive energy for the field.

Mr. Richmond testified that, in his opinion, any crude withdrawals in excess of present production would encourage water encroachment and that, for every 10,000 barrels of daily production above 130,000 barrels, 10 wells would be added to those making water.

Under questioning, he gave as his opinion that, by opening the Yates wells, an additional 10,000 barrels daily each day for 40 days, the field would be "drowned out."

Mr. Richmond said he believed that, for one day, the Yates field actually could produce 3,500,000 barrels, were it practicable or desirable to do so; that, within 24 hours, however, 98 per cent of the wells would be showing water and that, within 30 days, the field would be capable of producing only 10,000 barrels daily.

Under the present system of ratable withdrawals, he estimated the life of the Yates field at 21 years and the ultimate recovery at nearly 800,000,000 barrels. Total recovery to Jan. 1, 1931, was given as 108,000,000 barrels and future recovery was estimated at 690,000,000 barrels.

"If proration were lifted," Mr. Richmond said, "the future ultimate recovery would be only 235,000,000 barrels, to be produced within six months thereafter."

A NEW bottom hole test on Yates field reservoir pressures is now under way, he said. Average present pressure found in the 280 wells already tested, out of the 401 in the field, is 630 pounds to the square inch. Originally, 700 pounds pressure was inferred on the basis of bottom hole tests made on two wells at key points in the field.

The present most nearly comparable field to Yates in the Permian salt basin producing province is Hobbs, New Mexico, where rated potential is 1,122,963 barrels daily.

While no testimony on Hobbs could be developed at the Austin prorating hearing, concerned only with Texas fields it was the privately expressed opinion of informed operators owning properties in the field that Hobbs has a present potential of approximately 500,000 barrels daily in a sense similar to the one-day estimate of 3,500,000 barrels accredited to Yates in Mr. Richmond's testimony.

HOBBS conditions underground are more directly comparable to the Winkler development of the salt basin region in Texas; except that Hobbs, like Yates, has been under proration from the inception of the field. In the Winkler area, proration was not started until the field had been producing between six and eight months and the daily unrestrained flow had reached above 300,000 barrels daily.

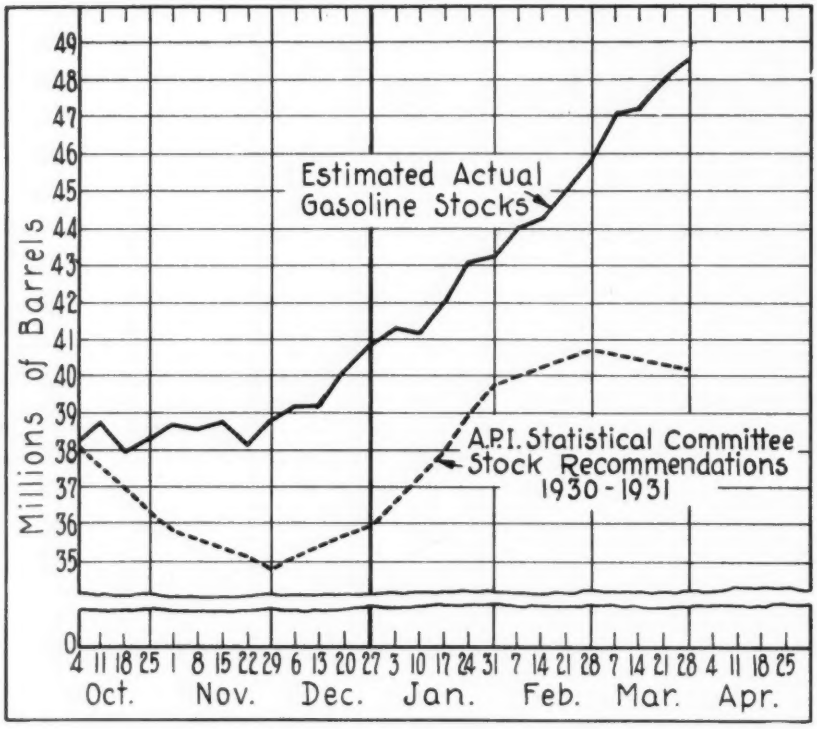
Testifying at the Austin hearing on the Winkler area, A. B. Capers, field umpire, said the 524 wells there are now producing 48,500 barrels daily, against rated potential of 100,000 barrels. The field as a whole, however, is unable to actually produce its prorating allowable of 60,000 barrels daily, without inequities to some operators.

Of the total 524 Winkler wells, 175 have potentials of less than 35 barrels each. Operators in the field are lifting approximately 18 barrels of water for every barrel of oil recovered.

Forty wells in the Winkler area were described as carrying more than 100 pounds back pressure to level out the water table and permit maximum recoveries under conditions now obtaining; 62 have less than 100 pounds.

"Overproduction in the early days of the field allowed water encroachment through vertical fractures, and other sources, to seriously damage possible total recoveries," said Mr. Capers.

# Winter Gasoline Stock Increase Half That of Previous Year




**The above chart shows the present status of actual gasoline stocks at refineries in this country (solid line) as compared with the recommendations in the report of the A. P. I. committee for stocks for various periods (dotted line) to bring the industry out April 1 with total stocks of 40,000,000 barrels.**

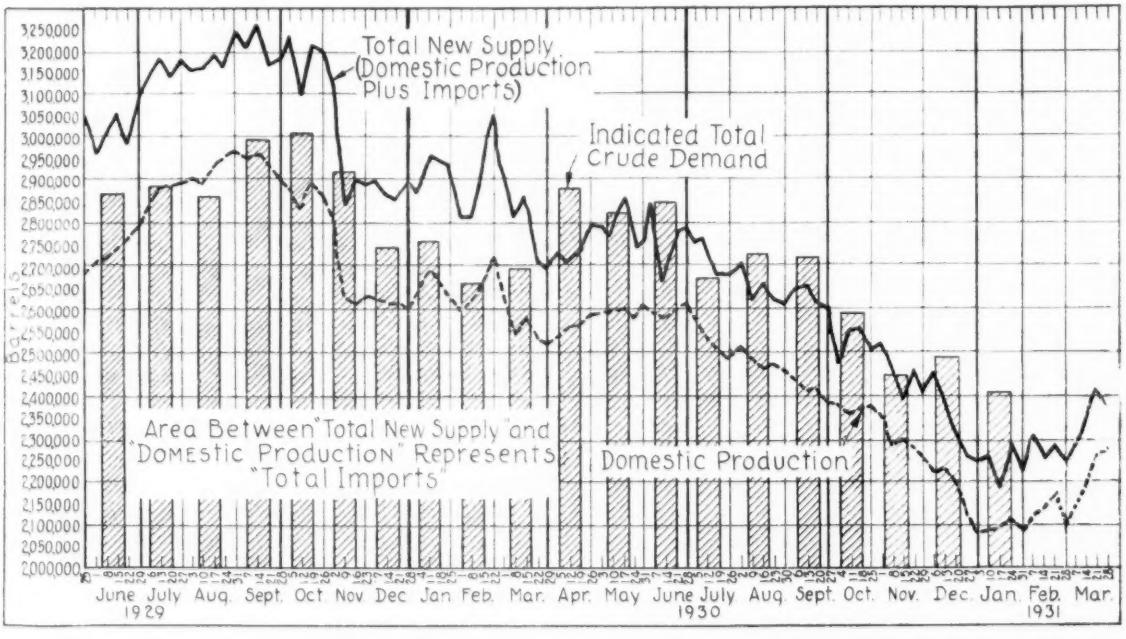
By Telegraph
NEW YORK, March 31

STOCKS of gasoline at refineries on April 1 probably will approximate 48,500,000 barrels according to indications seen in the weekly reports gathered by the American Petroleum Institute for the week ended March 28.

Last November it was recommended to the refining industry by the institute's statistical subcommittee that stocks be held to 40,000,000 barrels by April 1. The voluntary economics committee of the Federal Oil Conservation Board suggested a stock level of 45,000,000 barrels by April 1.

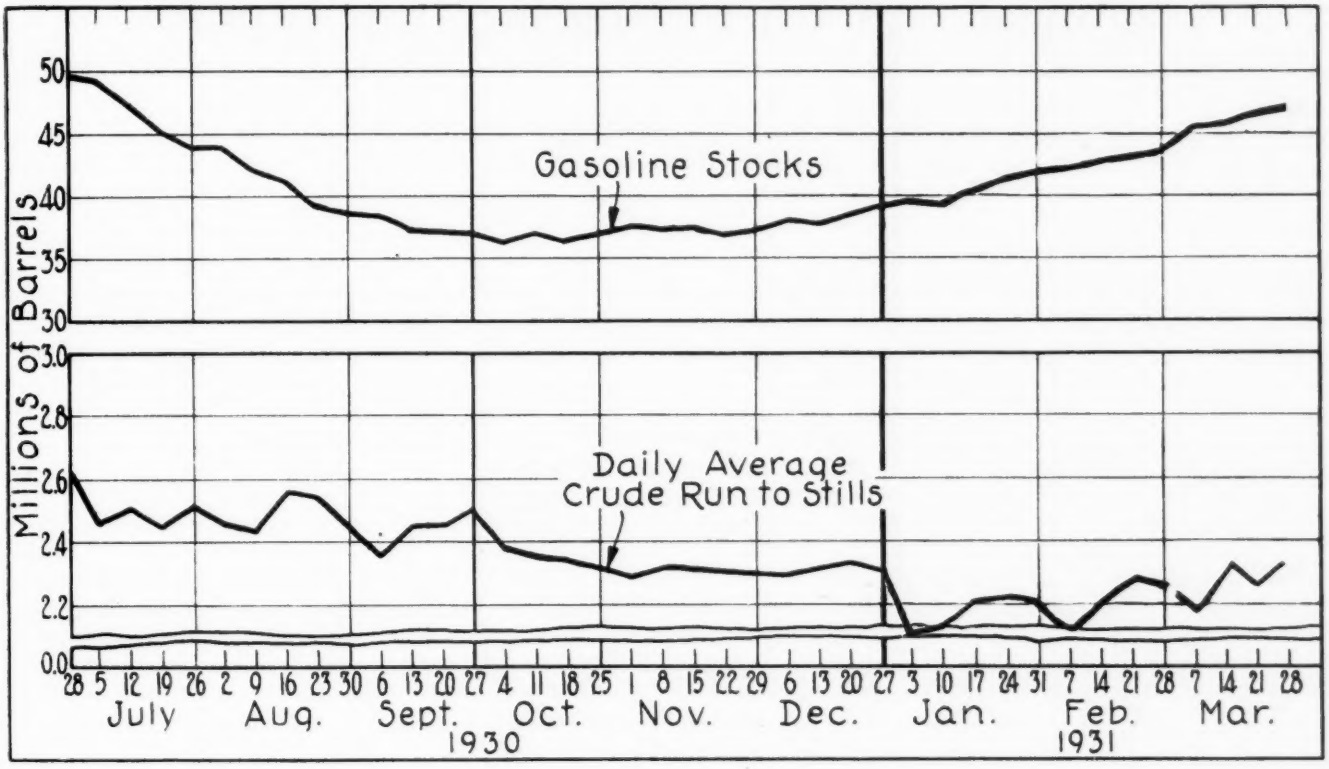
While the industry has failed to reach one goal by about 3,500,000 barrels and the other by 8,500,000 barrels it has made a real achievement in conservative operations during the winter. This is apparent when the record of the past winter is compared with that of the 1929-30 winter season.

Stocks held by refiners on April 1 this year are approxi-


Total New Supply (Domestic Production Plus Imports)
Indicated Total Crude Demand
Area Between "Total New Supply" and "Domestic Production" Represents "Total Imports"
Domestic Production
June July Aug. Sept. Oct. Nov. Dec. Jan. Feb. Mar. Apr. May June July Aug. Sept. Oct. Nov. Dec. Jan. Feb. Mar.
1929
1930
1931

**This chart shows crude oil supply from week according to the American Petroleum Institute reports (solid line) in relation to indicated crude oil demand as taken from the Bureau of Mines monthly reports (shaded columns).**

## U. S. Crude Runs and Gasoline Stocks as Reported Weekly by A. P. I.




mately 6,700,000 barrels lower than on the same date last year. This has been accomplished in spite of the fact that the industry entered the winter season with more gasoline than it did in the fall of 1929.

In the five months from Nov. 1, 1929, to April 1, 1930, the refining industry added 20,200,000 barrels of gasoline to inventories. The spring season opened with refiners holding 55,200,000 barrels in storage.

In the past five months refiners have held their runs down to such a point that stocks have been increased only 9,800,000 barrels, less than half the increase made in the previous winter.

Within the next few weeks the federal board will present a new estimate of demand which may be expected during the coming spring and winter. The institute committee also may be expected to estimate demand and recommend a manufacturing schedule.

Any recommendations made to refiners by these committees will have an even better chance of being followed closely than the recommendations made last November. This is true because of the agreement by chief importers to restrict imports of crude and refined products from Venezuela.

In the week ended March 28 refiners reporting to the Institute increased gasoline stocks 686,000 barrels to 47,444,000 barrels. The largest increase was at Texas Gulf plants where 370,000 barrels were added to storage.

Crude runs were increased 35,400 barrels daily average so that refiners utilized 65.3 per cent of capacity. More than half of the increase in crude runs was at Texas Gulf refineries.

Fuel oil stocks were reduced 423,000 barrels.

## Current Refinery Operations

| Districts | Per Cent Capacity Reporting | Daily Average Crude to Stills (Barrels) Week Ended | | Per Cent of Reporting Capacity Operated Week Ended | | Stocks (Thousands of Barrels) Gasoline | | Gas & Fuel Oil | | Cracked Gasoline Production % of Total Capacity Reporting | Daily Av. Production (Barrels) Week Ended | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Mar. 28 | Mar. 21 | Mar. 28 | Mar. 21 | Mar. 28 | Mar. 21 | Mar. 28 | Mar. 21 | Mar. 28 | Mar. 28 | Mar. 21 |
| East Coast | 100.0 | 476,400 | 459,400 | 77.8 | 75.0 | 8,690 | 8,689 | 7,244 | 7,180 | 90.3 | 85,700 | 79,400 |
| Appalachian | 93.8 | 93,400 | 94,000 | 70.5 | 70.9 | 1,766 | 1,662 | 1,107 | 1,163 | 94.6 | 19,300 | 19,300 |
| Ind., Ill., Ky. | 97.5 | 297,000 | 303,200 | 78.0 | 79.6 | 5,743 | 5,616 | 3,082 | 3,066 | 95.2 | 65,100 | 63,700 |
| Okla., Kans., Mo. | 89.4 | 257,900 | 250,100 | 62.6 | 60.7 | 3,468 | 3,473 | 3,727 | 3,547 | 90.0 | 53,300 | 54,100 |
| Texas | 91.9 | 549,400 | 536,300 | 73.9 | 72.1 | 8,088 | 7,767 | 8,096 | 8,178 | 95.9 | 96,300 | 116,700 |
| La., Ark. | 98.3 | 148,400 | 145,000 | 56.6 | 55.3 | 1,994 | 1,913 | 2,254 | 2,372 | 97.7 | 33,600 | 29,300 |
| Rocky Mountain | 93.1 | 48,600 | 48,000 | 34.8 | 34.4 | 1,893 | 1,874 | 829 | 838 | 100.0 | 14,600 | 12,300 |
| California | 98.8 | 461,300 | 461,000 | 52.0 | 51.9 | 15,802 | 15,764 | 100,929 | 101,347 | 100.0 | 41,700 | 40,000 |
| Total | 95.7 | 2,332,400 | 2,297,000 | 65.3 | 64.3 | 47,444 | 46,758 | 127,268 | 127,691 | 94.9 | 409,600 | 414,800 |
| Texas (Gulf Coast) | 100.0 | 417,300 | 400,000 | 78.8 | 75.5 | 6,950 | 6,580 | 5,791 | 5,923 | 98.5 | 78,000 | 96,400 |
| La. (Gulf Coast) | 100.0 | 100,900 | 97,000 | 68.4 | 65.8 | 1,805 | 1,719 | 1,213 | 1,330 | 100.0 | 24,000 | 21,600 |

# Review of Late Production News

U. S. PRODUCTION increased 7300 barrels daily average in the week ended March 28. Wide fluctuations appeared in Oklahoma fields due to proration tests and adjustments. Total daily average in the country was 2,275,350 barrels, according to the American Petroleum Institute.

Crude oil imports were about halved, being at the rate of 87,000 barrels the past week, compared with 146,000 barrels the previous week. Total new crude supply decreased 52,000 barrels, to 2,362,350 barrels.

Decreases occurred in these Oklahoma fields the past week: Allen Dome, 15,650 barrels; Earlsboro, 19,000 barrels; Oklahoma City, 28,400 barrels; St. Louis, 20,900 barrels; and Seminole, 16,200 barrels. Increases occurred in these: Bowlegs, 19,450 barrels; East Earlsboro, 16,250; Little River, 30,000; and Mission, 13,300 barrels.

In the new Rusk-Gregg area of East Texas, Joiner field gained 7500 barrels; Kilgore, 19,650 barrels; and Longview, 3500 barrels.

Darst Creek, in southwest Texas, declined 10,300 barrels. Barbers Hill, in Gulf Coast Texas, gained 2400 barrels.

In California, Elwood-Goleta decreased 3500 barrels while Santa Fe Springs increased 2500 barrels.

## Texas, New Mexico, Louisiana

**Current production in this country by pools is found on page 97.**

WELLS extending the Longview, Kilgore and Joiner areas of east Texas marked the turn of the week and added thousands of barrels of potential production to the Sabine uplift region.

Smith County's first well which extended the Joiner area two miles and widened the general district to a total of five miles at the south end made upwards of 300 barrels the first hour at completion depth below 3600 feet.

The Joiner area of Rusk county was also extended northerly two miles toward the Kilgore development by a well of McMillan and others on the Thompson tract in the John Darley survey. It produced at the rate of 14,000 barrels daily. Depth was 3707, or the lowest level at which oil had been found in this part of the district.

Three hundred feet from the Lathrop discovery well in Gregg county, near Longview, the Simms Oil Co. and Stanolind Oil & Gas Co., partnership completed No. 1 Tenery throwing oil over the top of the 120-foot derrick. It flowed wild eight hours before being controlled. Operations elsewhere in Texas, Louisiana and New Mexico were without general importance throughout the week.

## Oklahoma, Kansas

PRINCIPAL field developments of the past week in the Mid-Continent field were in Kansas where two more siliceous lime pools were opened in the central west part of the state. One of them is in Rice county, a few miles northeast of the Raymond pool. L. E. Cress' No. 1 Sharp, SE NE of 13-20S-10W, found the lime at 3330 feet and at 3336 the hole filled with oil in 30 minutes. The oil is better than 40 degrees gravity.

The other new pool is in Ellsworth county, about 12 miles of the town of that name. It is J. A. Aylward's No. 1 Stratman, SW NW SE of 1-17S-10W. The siliceous lime was topped at 3255 feet and at five feet in the hole filled with 47-degree gravity oil. This well is about three miles south of the T. B. Slick No. 1 Heiken, which was estimated at 2000 barrels initial production some months ago. Everything in this part of Kansas, including the Raymond pool, is shut in for lack of market.

## California

HUNTINGTON BEACH in the Los Angeles Basin and Lost Hills, a San Joaquin Valley pool, vied for the spotlight in California production news the past week.

Reports were that a production test would be made on a well bottomed below 7500 feet in the former area. Although no official information is available on actual showings encountered in this and another deep test of the Huntington Beach field, field scouts believe in a deep commercially productive horizon.

In contrast to previous attempts to develop production, which failed because of a lack of kick to some favorable sand cored, these present projects are supposed to have difficulty in controlling the gas pressure.

At Lost Hills, George F. Getty was expected to drill out the cement over the week end in Lincoln No. 1 located in the northwest end of the poorly defined structure. Here too, field scouts indicated an oil well was in the making, although not at the present depth of 3770 feet. It is anticipated that the Temblor formation will be penetrated at about 4000 feet. The Temblor is the productive sand in the Kettleman Hills pool to the north and in North Belridge to the south. Some plan contemplating unit operation of the Lost Hills field and North Belridge fields is in preparation, although definite details will not be available until after more is known of the structures.

# «Regular» Gasolines in U. S. Show 59 Average Octane Number

CLEVELAND, March 30

THE average knock rating of regular or "competitive" gasolines in the U. S. is reported as 59.2 octane number, by the U. S. Bureau of Mines in a report[1] of a study of motor gasolines collected last year. The lowest rating of the composite samples collected for each of 20 cities was 51, and the highest 68.

The average rating for premium priced gasolines was 73.7, or almost exactly the standard rating for ethyl gasoline. Composite samples ranged from 65 to 80 octane number. According to the report the smallest spread between values of regular and premium gasolines was found in Washington, D. C., the greatest in Cleveland, or possibly in Los Angeles.

A complete study of the percentages of sulfur, gum content by copper-dish and by the Bureau of Mines steam-oven method, color, doctor test, price, and the state gasoline tax was made. Corrosion of the copper strip was also tested, and only one sample out of 298 failed to pass this test. This study is the second part of the report, the first part of which, dealing with distillation properties, Reid vapor pressures, etc., having been reported previously.[2]

The term "competitive gasolines" refers to fuels selling at the regular or base price for each region, and those selling below that price; "premium gasolines" include those selling above the regular price in each locality, including Ethyl, benzol blends, etc., from one to three cents or more above the regular price.

A. J. Kraemer[3] and E. C. Lane,[4] authors of the report, made a number of comparisons between different data obtained. Tabulations given show that little if any correlation exists between doctor test, sulfur content and copper-dish gum found in the samples. One sample had a positive doctor, 0.14 per cent sulfur, and only 21 mg. of gum. Another showed negative doctor, the same amount of sulfur, but 170 mg. of gum. The highest gum test reported was from a sample with negative doctor and only 0.04 per cent sulfur; the gum content was 245 mg.

Results obtained with the steam oven test for gum are adjudged by the authors to show that this test is a true indication of the "preformed" gum in a motor fuel. Of 298 samples tested, 251 showed "preformed" gum by this test of 7 mg. or lower, 54 of which showed 1 mg. or less. Copper-dish test results are also reported, with statements that the lack of reproducibility of the test is well known, but that it will differentiate between a very good and a very bad gasoline, and is used widely for the chief reason that no suitable test has been devised to replace it for its specific purpose.

Determination of the sulfur content of the samples tested showed that large proportion of these satisfied the federal specifications for sulfur.[5]

[1]Abstracted from R. I. No. 3092, "Twenty-second Semi-Annual Motor Gasoline Survey," March, 1931, obtainable from Bureau of Mines, Washington, D. C.

[2]B. of M. R. I. No. 3063, Dec., 1930, also in NATIONAL PETROLEUM NEWS, Dec. 17, '30, p. 39.

[3]Senior Refinery Engineer, Bureau of Mines.

[4]Assistant Petroleum Chemist, Bureau of Mines.

[5]See also, "Sulfur in 91.5 Per Cent of Commercial Samples," by A. J. Kraemer, NATIONAL PETROLEUM NEWS, July 9, 1930, p. 39.

## Table 1

### Detonation Survey of Commercial Motor Fuels

**Composite Samples—Summer, 1930**

| Source | Approximate Octane Number Competitive | Premium |
|---|---|---|
| Boston | 64 | 76 |
| New York | 61 | 72 |
| Washington, D. C. | 66 | 75 |
| Pittsburgh | 68 | 78 |
| Cleveland | 55 | 76 |
| Atlanta | 63 | 73 |
| Chicago | 55 | 72 |
| St. Louis | 55 | 71 |
| New Orleans | 62 | 74 |
| Minneapolis-St. Paul | 51 | 71 |
| Omaha | 55 | 68 |
| Tulsa | 58 | 74 |
| Dallas | 55 | .... |
| Denver | 55 | 65 |
| El Paso | 56 | 74 |
| Salt Lake City | 60 | 74 |
| Seattle | 64 | 80 |
| Los Angeles | 58 | .... |
| San Francisco | 64 | .... |
| Combined Calif. | .... | 80 |
| Average | 59.2 | 73.7 |

## Table 2

### Classification of Samples According to Results of the Steam-Oven Test

**ALL SAMPLES**

| City | Evaporation residue in milligrams per 100 c.c. 1 or less | 2 or 3 | 4 or 5 | 6 or 7 | 8 to 10 | 11 to 15 | 16 to 20 | Over 20 | Total |
|---|---|---|---|---|---|---|---|---|---|
| Boston | 2 | 11 | 1 | 2 | .... | .... | .... | .... | 16 |
| New York | 4 | 7 | 1 | 2 | .... | 2 | .... | .... | 16 |
| Washington | 5 | 3 | 2 | 4 | 1 | 3 | 1 | 1 | 20 |
| Pittsburgh | 1 | 3 | 1 | 3 | 5 | 2 | 1 | .... | 16 |
| Cleveland | 2 | 8 | 2 | .... | 2 | 2 | .... | .... | 16 |
| Atlanta | 1 | 3 | 6 | 4 | .... | 2 | .... | .... | 16 |
| Chicago | 3 | 4 | 3 | 3 | 3 | 3 | 1 | .... | 20 |
| New Orleans | 7 | 6 | 2 | .... | .... | .... | .... | .... | 15 |
| St. Louis | 3 | 8 | 5 | 2 | .... | 2 | .... | .... | 20 |
| Minneapolis-St. Paul | 2 | 9 | 2 | 2 | .... | 1 | .... | .... | 16 |
| Omaha | 3 | 5 | 2 | 3 | 2 | 1 | .... | .... | 16 |
| Tulsa | 4 | 6 | 1 | 2 | 3 | .... | .... | .... | 16 |
| Dallas | 1 | 4 | 6 | 1 | 2 | 1 | 1 | .... | 16 |
| Denver | .... | 5 | 2 | 1 | .... | .... | .... | .... | 8 |
| El Paso | 5 | 6 | 1 | .... | .... | .... | .... | .... | 12 |
| Salt Lake City | .... | 6 | 4 | 1 | 1 | .... | .... | .... | 12 |
| Seattle | 5 | 6 | 4 | .... | .... | 1 | .... | .... | 16 |
| Los Angeles | 4 | 9 | 3 | .... | .... | .... | .... | 1 | 17 |
| San Francisco | 2 | 6 | 3 | 1 | 1 | .... | 1 | .... | 14 |
| Total | 54 | 115 | 51 | 31 | 20 | 20 | 5 | 2 | 298 |
| Per cent of total | 18.1 | 38.6 | 17.1 | 10.4 | 6.7 | 6.7 | 1.7 | 0.7 | 100 |

# Trade Body Hears Oil Men For And Against the Code

By Telegraph

WASHINGTON, March 31

A STATEMENT of reasons why the code of practices for the marketing of refined petroleum products was fostered by the oil industry and why it should be left standing, was being presented to the Federal Trade Commission today by the American Petroleum Institute.

Two separate groups were to receive hearings before the commission, after the institute's representatives conclude their presentation. These groups were the Independent Oil Men of America, with E. A. Hilpp, Louisville, spokesman, and marketers and refiners of lubricating oils, for whom J. L. Frampton, of Oil City, Pa., was to be spokesman.

About 100 oil men were present at the opening session of the commission's hearing on the code, most of them representing the smaller refiners and marketers of motor oils.

Chairman Hunt and Commissioners McCullough, Humphrey and Ferguson were present. Commissioner March was away. William R. Boyd, Jr., executive vice-president of the institute, in opening the discussion, said only the code rules and not the policy of the commission in rejecting 18 of the 21 rules would be discussed.

He introduced Roy B. Jones, Panhandle Producing & Refining Co., Wichita Falls, Texas, who began to tell the conditions that underlay each rule of the code. He was questioned on various points by the four commissioners and was assisted in explaining conditions by Mr. Boyd, E. S. Hall, Standard Oil Co. of New Jersey, and L. L. Stevens, Standard Oil Co. of Indiana. Henry M. Dawes, Pure Oil Co., the fifth member of the institute committee, was present but had not entered the discussion in the opening session.

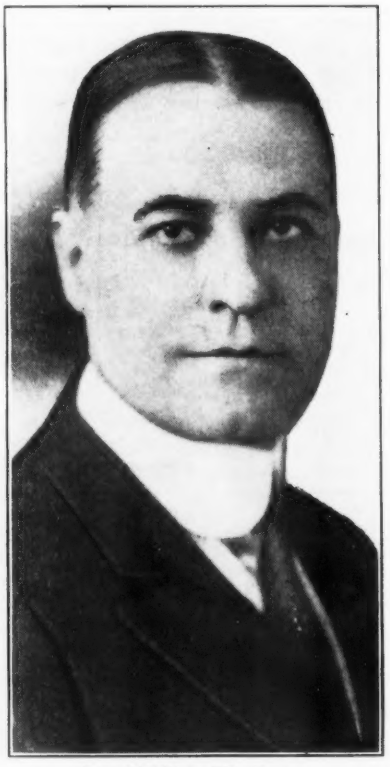
A meeting of refiners and marketers was held at the Willard Hotel yesterday and a committee drafted a statement which will be presented to the commission later in the hearing. It was intimated today that some startling facts would be revealed when it is presented.

The commission—Humphrey dissenting—said the oil men could have all the time they wanted to present their case for or against the code. A two-day session seemed imminent.

## Dr. Walter M. Cross Dies At Kansas City

CLEVELAND, March 25.—The oil industry lost one of its most eminent and best known technologists with the death March 24 of Dr. Walter M. Cross at Kansas City, at the age of 53.

Dr. Cross' greatest contribution to the development of petroleum technology is the Cross cracking process, developed jointly by him and his brother, Dr. Roy Cross. This was the first successful cracking process to come into use after the Burton process, and has become widely employed in this country and abroad, being in operation by the Standard Oil Companies of New York and of Indiana, the Pure Oil Co., the Magnolia Petroleum Co., Atlantic Refining Co., Burma Oil Co., The Shell Companies, the Anglo-Persian Oil Co., The Indian Refining Co. and others.



Dr. Walter M. Cross

The first commercial installation of this process was made in 1921 at the plant of the Indian Refining Co. at Lawrenceville, Ill. This plant was designed to crack 700 barrels of fuel oil to produce 30 to 35 per cent of gasoline. It was here that the use of the reaction chamber, or "soaking drum" first came into commercial use for cracking oil to produce gasoline. According to earlier stories on the plant, pressures as high as 600 pounds were provided for and used in operation. Probably the largest single installation of this process is now, or was until very recently, operating on the exact site of the original unit at the Indian plant.

Dr. Cross was also president of the Kansas City Testing Laboratory, where the greater part of his experimental work has been carried on. This laboratory is one of the largest and most widely known in the country.

Dr. Cross was also one of the owners of the Gasoline Products Co., holders of the Cross patents on cracking and other refining processes, by which the process has been controlled and licensed to refiners.

---

### Opens Store at Kilgore

CLEVELAND, March 30.—International Derrick & Equipment Co. is establishing a branch store at Kilgore, Tex. W. A. Jesson, formerly branch manager at Oklahoma City, has been transferred to the new store. With him will be Don DeWar, field engineer, who is being brought from the West Texas fields.

Andrew Bowman, formerly in charge of the store at Grand Saline, has been transferred to Henderson, Tex.

# Natural Gasoline Men to Study Plant Problems and Economics

TULSA, March 28

PROGRAM of the Tenth annual convention of the Natural Gasoline Association of America has been diversified to attract both management and operating personnel of the industry. The convention is to be held at the Mayo hotel, Tulsa, May 19 to 21.

Frank L. Chase of the Lone Star Gas Co., Dallas, will open the convention as he has many times in the past, calling on Dr. E. R. Lederer of the Texas Pacific Coal & Oil Co., Fort Worth, for the president's annual address, after welcoming the delegates.

Chairmen of the various active standing committees will report at this session as follows: Gas Contract committee, T. R. Goebel, Skelly Oil Co.; Standardization and Gas Testing George P. Bunn, Phillips Petroleum Co.; Technical and Aviation R. C. Alden, Phillips Petroleum Co.; Specifications E. W. Zublin, Texas Pacific Coal & Oil Co.; Sales Managers, A. T. Scherer, Sinclair Oil & Gas Co.; Standard Forms, A. H. Menuet, Skelly Oil Co.

Following is the program for the afternoon session May 19:

**Prepared Economics Round Table Discussion**

Mid-Continent:

"Production and Transportation of Natural Gasoline"—F. E. Rice, Phillips Petroleum Co.

"The Natural Gasoline Situation from the Standpoints of the Natural Gas Pipeline and Carbon Black Manufacture"—W. E. Reardon, Columbian Gasoline Corp.

"The Marketing Outlook for Natural Gasoline"—D. E. Buchanan, Hanlon-Buchanan, Inc.

California:

"Production, Transportation and Markets of Natural Gasoline in California"—W. W. Robinson, Jr., The Texas Co. (California).

**Wednesday, May 20, 1931**

**Morning Session**

"New Developments in Plant Processes and Equipment."—G. M. Davidson, Empire Oil & Refining Company. Discussion by E. A. Wooden, Sinclair Oil & Gas Co.

"Plant Management Kinks."—Jack Power.

"The Disposal of Residue Gas."—D. C. Williams, Continental Oil Co.

Discussion by D. A. Sillers, Lone Star Gasoline Co.

**Afternoon Session**

"A Resume of the New Specifications for Natural Gasoline."—R. C. Alden, Phillips Petroleum Co.

Discussion by Dr. George G. Brown, University of Michigan.

"Fractionation Control."—S. S. Smith, Shell Petroleum Corp.

Discussion by W. G. Hiatt, Phillips Petroleum Co.

"The Kettleman Hills of Today."—C. R. Burgess, Standard Gasoline Co.

**Thursday, May 21, 1931.**

**Morning Session**

"The Status of the Liquefied Petroleum Gas Industry."—G. G. Oberfell, Phillips Petroleum Co.

Discussion by W. G. Watkins, Skelly Oil Co.

"Motor Fuel Developments."—Dr. George G. Brown, University of Michigan.

Discussion by G. G. Oberfell, Phillips Petroleum Co.

**Afternoon Session**

"The Refinery, from the Natural Gasoline Man's Viewpoint."—Emby Kaye, Skelly Oil Co.

"The Determination of the True Vapor Pressure of Liquids and Its Value the Petroleum Industry."—E. J. Squire, Shell Oil Co. (California).

"Vapor Recovery in the Refinery."—Speaker to be selected by the Western Petroleum Refiners Association.

# W. R. McCain Elected President Of Independent Oil Men

CHICAGO, March 25

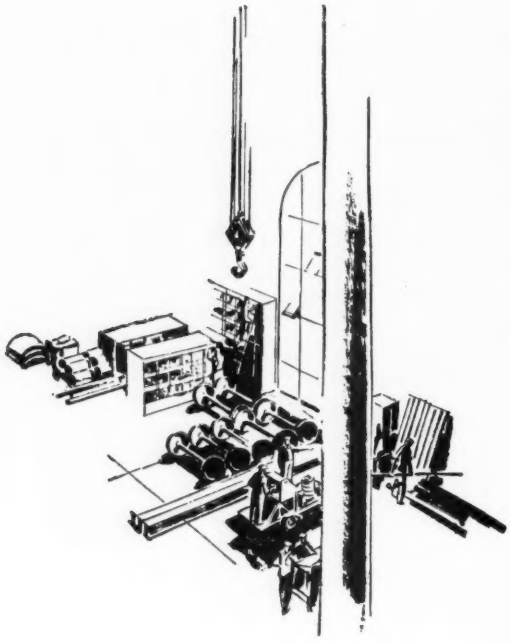
W. R. McCAIN of the Purity Oil Co., Springfield, Mo., was elected president of the Independent Oil Men of America at its annual meeting here. A. L. Lommel of the Bartles-Shepherd Oil Co., Waterloo, Ia., was reelected vice-president and F. A. Muench of the Diamond Kerosine Co., Carlinville, Ill., was re-elected secretary and treasurer.

W. R. McCain

Trustees for the coming year are L. D. Pierce of the Pennsylvania Petroleum Products Co., Providence, R. I.; Mr. Lommel, J. O. Abshire of the Abshire Oil Co., Goshen, Ind.; and S. W. Rusk of the Rusk Oil Co., Philaphia.

E. H. Hilpp of the Kentucky Consumers Oil Co., Louisville, was elected chairman of the board of directors. Other members of the board elected for a three-year term are: P. A. Brewer of the United Oil Co., Boston; W. O. Hudson of the Marine Oil Co., New Orleans; J. M. Lassing of the Peerless Oil & Gas Co., Nashville; W. L. Lesh of the Kanotex Refining Co., Arkansas City, Kan.; J. H. Porteous of the Valley Oil Co., Middletown, Conn.; B. G. Shepard of the Inter-State Oil Co., Kansas City; J. Shifer of the Intercity Oil Co., Philadelphia; M. E. Walz of the Detroit Independent Oil Co., Detroit Lakes, Minn.; and President McCain.

C. Y. Hinchey was re-elected executive manager.



# PARTS

## ALWAYS A COMPLETE SUPPLY

**There is always a complete stock of tank car repair parts at each of the ten strategically located General American plants. This means you can get repairs made when you want them . . . without unnecessary waits or delays. No time is lost waiting for the needed material to be shipped from some distant factory. Your cars are back on the rails again in the quickest possible time.**

**This maintainance of a complete supply of parts at all times is but incidental, however, to the great transportation service developed by General American. That service includes vast resources, a large fleet of tank cars, ten repair plants, and an export terminal for the storage, handling and packaging of bulk liquids.**

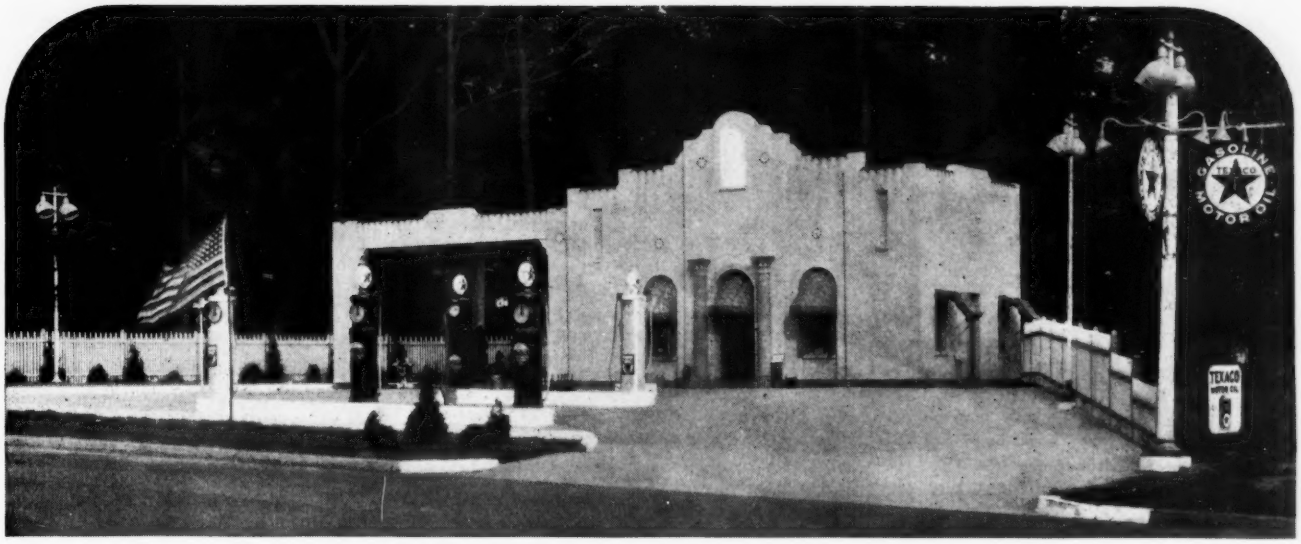
***Such service enables you to get all the cars you need . . . of the particular type you need . . . when and where you need them.***

**Ten General American Repair Plants are maintained in addition to six district offices in:—New York City, Buffalo, Los Angeles, Tulsa, Dallas and New Orleans. Head office: Chicago, Illinois.**

**GENERAL AMERICAN**

**TANK CAR CORPORATION**

GATX GENERAL AMERICAN




**Here is a Texaco station at Bladensburg road and N streets, N. E. Washington, D. C. This station occupies an irregular lot having a frontage of 100 feet, rear line of 90 feet and side lines of 157 and 100 feet. The drives are 24 and 16 feet wide. The station was bought from an individual owner by The Texas Co., after it had been built**

# Texas Corp. Market Outlets to Cover Principal Transcontinental Roads

By Roger B. Stafford

N. P. N. STAFF WRITER

CLEVELAND, March 30

THE Texas Corp. has distribution for its Texaco products on 36,000 miles of the principal transcontinental highways in the United States. It plans complete coverage. The total length of these 23 routes is 50,192 miles. This means the company has yet to get distribution on 14,192 miles to reach its goal.

This marketing plan of The Texas Corp. was revealed in the annual report of R. C. Holmes, president.

The Texas Corp. spent $50,949,819 last year on development, expansions and improvements. Of that sum $21,112,897 went into the development of sales facilities at home and abroad. Other expenditures included:

| | |
|---|---|
| Producing | $12,632,583 |
| Refining | 14,258,544 |
| Tank fams and tankage | 235,834 |
| Pipelines | 1,154,550 |
| Miscellaneous | 1,555,411 |

Net earnings of the Texas Corp. and subsidiaries in 1930 amounted to $15,073,303 after deduction for all reserves and federal income taxes. This was $1.53 a share on the average of 9,850,885 $25 par shares outstanding during the year. In 1929 the company netted $48,318,072 or $5.12 a share on the 9,433,164 average number of shares outstanding that year.

The low price of gasoline, the company's principal product, accounted for the decline in earnings, Mr. Holmes indicated. He pointed to the fact that the average price received for gasoline, exclusive of the tax, in 50 representative cities in 1930 was 1.75 cents a gallon less than in 1929 and 5 cents a gallon less than the average received in the 1921-1928 period. Prices for gasoline in foreign markets generally were lower than in 1929, he stated.

Sales of all products were generally satisfactory in view of the economic situation in the United States and abroad, Mr. Holmes wrote. During the year the company introduced Texaco Ethyl gasoline and new Texaco motor oils. The acceptance of these products was satisfactory, Mr. Holmes reported.

Its aviation products were on sale at 250 major airports of the United States and wide distribution was attained for its aerodiesel fuel. The qualities of its aviation products were demonstrated by the establishment of transcontinental and inter-city speed records by Capt. Frank M. Hawks in the company's monoplane, Texaco No. 13, Mr. Holmes stated.

Gross crude oil production of the company and its subsidiaries totaled 42,033,877 barrels, a decrease of 8,376,808 barrels or 16.6 per cent from its 1929 production. Its net production and its share of oil produced by others amounted to 36,603,829 barrels, or 16 per cent less than in 1929.

The company's gross production Dec. 31, 1930, was 97,278 barrels, as compared with an

## Consolidated Income Accounts of The Texas Corp. and Subsidiaries

| | 1930 | | 1929 | |
|---|---|---|---|---|
| Gross operating earnings | | $188,812,427.42 | | $213,262,170.00 |
| Operating and general expenses | $118,819,895.38 | | $111,011,368.86 | |
| *Taxes | 7,671,592.37 | | 11,194,797.36 | |
| Intangible development costs | 8,725,553.97 | | 12,275,388.04 | |
| Depletion, lease amortization | 7,943,619.32 | | 7,699,202.50 | |
| Depreciation, retirements, other amortization | 27,259,433.67 | 170,420,094.71 | 24,259,015.37 | 166,439,772.13 |
| Net operating income | | $18,392,332.71 | | $46,822,397.87 |
| Non-operating income | | 3,265,503.88 | | 4,297,230.91 |
| Income before interest charges | | $21,657,836.50 | | $51,119,628.78 |
| Interest on funded or long term debt | | 6,428,730.81 | | 2,063,866.42 |
| Other interest | | 248,573.68 | | 763,716.54 |
| Profit for period | | $14,980,532.10 | | $48,292,045.82 |
| Loss applicable to minority interests | | 92,771.08 | | 26,026.40 |
| Net to Texas Corp. | | $15,073,303.18 | | $48,318,072.22 |

*Exclusive of gasoline taxes.

average of 115,134 barrels daily during 1930. At the end of the year the operating subsidiaries had shut in more than 153,000 barrels daily average, Mr. Holmes reported. The potential at the end of 1930 was more than 250,000 barrels, compared with approximately 172,000 at the end of 1929.

Production of natural gasoline amounted to 3,042,087 barrels, a decrease of 3.4 per cent from the 1929 production, Mr. Holmes stated. The company had 29 gasoline plants Dec. 31, a decrease of one during the year.

Subsidiaries ran 57,434,845 barrels of crude to stills during the year and 1,025,021 barrels of purchased distillates. The crude runs were an increase of 111,645 barrels over runs in 1929, and distillates an increase of 54,000 barrels. Gasoline manufactured from crude oil averaged 49 per cent in 1930 as against 48.3 per cent in 1929.

Less than 1 per cent of The Texas Corp.'s crude oil production was in Mexico, its only foreign production reported for last year. At the end of the year, however, its subsidiary, Texas Petroleum Co., held 140,351 acres of exploration and exploitation concessions in Venezuela and the California Petroleum Corp. of Venezuela held a half interest in 679,568 acres of concessions in that country. The Texas Petroleum Co. held 810,000 acres in fee and under option in Colombia.

In the United States producing subsidiaries held 6,124,560 acres in fee and under lease at the end of the year, an increase of 493,136 acres over holdings at the end of 1929.

Total assets after deduction of $235,345,944 for depreciation, depletion, and amortization reserves, amounted to $581,897,346 Dec. 31. This was a decline of $27,955,738 in 1930, which is accounted for by a reduction of more than $27,000,000 in the marketable securities account. Securities evidently were sold to reduce current liabilities by $7,338,926, funded debt by $4,487,661 and to pay the difference between the year's net earnings and the $29,553,211 cash dividends.

Valuation of the company's fixed assets exclusive of patents and before depreciation, depletion and amortization, was carried at $559,570,804, an increase of $32,791,701 over fixed assets a year before. The capital assets accounts at the ends of 1930 and 1929 compare:

| | 1930 | 1929 |
|---|---|---|
| Lands, leases, wells, equipment | $197,276,491 | $194,876,392 |
| Oil pipelines, tank farms | 78,771,719 | 78,658,810 |
| Refineries, terminals | 138,152,152 | 127,385,978 |
| Tank cars, rail equipment | 9,525,161 | 8,646,718 |
| Ships, marine equipment | 33,673,518 | 33,672,833 |
| Marketing facilities | 99,475,122 | 81,280,738 |
| Miscellaneous | 2,696,641 | 2,257,636 |

Patents were carried at $376,783 at the end of 1930 and at $383,030 at the end of 1929. The depreciation, depletion and amortization reserve Dec. 31 was $20,003,909 more than the reserve at the end of 1929.

Current assets Dec. 31 amounted to $229,926,399 and current liabilities to $32,232,891. At the end of 1929 current assets were $271,705,128 and current liabilities $39,571,187. At the end of 1930 ratio of current assets to current liabilities was 7.2 to 1; at the end of 1929 6.8 to 1.

Exclusive of gasoline taxes and federal income taxes, The Texas Corp. paid $6,062,661 in taxes in 1930, compared with $5,560,133 in 1929.

## Producing Operations of The Texas Corp. Subsidiaries

| State | Barrels of Crude Total for Year 1930 | 1929 | Number of Oil Wells End of Year 1930 | 1929 |
|---|---|---|---|---|
| Texas | 16,871,096 | 17,444,159 | 2,154 | 2,114 |
| Louisiana | 2,715,172 | 1,561,542 | 375 | 364 |
| Arkansas | 1,246,499 | 1,444,180 | 216 | 221 |
| Oklahoma | 5,301,041 | 7,057,913 | 1,801 | 1,814 |
| Kansas | 1,278,982 | 940,034 | 998 | 1,006 |
| Kentucky | 237,075 | 268,442 | 551 | 558 |
| New Mexico | 1,336,137 | 238,469 | 20 | 10 |
| Colorado | 659,971 | 752,494 | 34 | 35 |
| Wyoming | 773,093 | 750,770 | 95 | 90 |
| Montana | 177,641 | 250,443 | 48 | 46 |
| California | 11,437,170 | 19,702,239 | 501 | 589 |
| Total U. S. | 42,033,877 | 50,410,685 | 6,793 | 6,847 |
| Mexico | 253,414 | 264,678 | 24 | 25 |
| Grand total | 42,287,291 | 50,675,363 | 6,817 | 6,872 |

## Refining Operations of The Texas Corp. Subsidiaries

Barrels of 42 U. S. Gallons Unless Other Measure Is Stated

| | 1930 | 1929 |
|---|---|---|
| Crude Runs | 57,434,845 | 57,323,200 |
| Purchased distillates run | 1,025,021 | 971,021 |
| Output— | | |
| Gasoline | 28,414,494 | 29,057,997 |
| Kerosine | 3,183,103 | 3,365,661 |
| Lubricating oils | 2,077,182 | 2,026,636 |
| Gas oils | 1,222,951 | 585,800 |
| Fuel oils | 13,215,468 | 17,727,158 |
| Asphalt (tons) | 409,792 | 374,946 |
| Paraffin wax (tons) | 5,231 | 3,922 |
| Roofing (squares) | 923,563 | 1,598,896 |
| Other Products (units)— | | |
| Oil cases | 7,973,043 | 11,536,520 |
| Cans | 15,476,383 | 22,288,325 |
| Asphalt drums | 218,008 | 282,643 |
| Asphalt barrels | 211,337 | 244,151 |

# Record Shows Failure of Proration To Stabilize Prices of Oil

By Daniel T. Pierce

Assistant to the Chairman, Sinclair Consolidated Oil Corp.

ON JANUARY 15, 1930, the Humble Oil & Refining Co. posted new price schedules for all grades of crude which substantially reduced values throughout the Texas fields. The new prices were promptly met by the Carter and Magnolia, and in due course by Sinclair, Prairie and Gulf.

While events for some time had been shaping towards such an end, and producers had for months been apprehensive, the action aroused intense opposition which manifested itself in hurried meetings, conferences and protests.

Out of it all came the proration movement designed to maintain price structure through limiting production. The political authority of states and the prestige of the federal government were enlisted in the undertaking.

From that time forward, at any rate, the oil industry of the Mid-Continent field may be said to have passed from the hands of the factors usually controlling, into the hands of the politico-economic prorationists, who believed it possible to maintain the price structure in disregard of other economic factors.

No chapter of oil history is more interesting than the one written by developments between Jan. 15, 1930, and March 5, 1931; nor any of similar period of time in which the market was more erratic and shifting, despite the fact that it was supposed to maintain an even keel.

In making the reduction Jan. 15, President Farish of the Humble Oil & Refining Co., explained that it was necessary "in order to adjust the price of crude with the prices of petroleum products." In other words, over-production.

On April 10 following, the market very unexpectedly turned up. Ten cents per barrel was added to the price of crude all around. It is probable that this step was taken partly in response to the producer's earnest protest against the previous cut, partially to encourage them in the energetic efforts they were making to restrain production, and partially because there had been a slight betterment in the economic conditions.

ASSERTIONS in newspaper articles recently that the Sinclair interests were in part responsible for the crude oil price reduction of March 5 prompted the accompanying statement by Mr. Pierce. While the Sinclair companies were arrayed in Oklahoma on the anti-proration side of the controversy that has been carried on for several weeks, Mr. Pierce sets out the price record to show that the companies with which he is identified were not the aggressors in making the low market that now prevails.—Editor.

Concerning this upturn in the price, President Farish explained:

> "The advance in the price of crude * * * is made possible by improvement in the relationship between supplies of crude and refined products, and market demand. * * * Whether the price now posted can be maintained or increased will depend upon the success of conservation movements * * * ."

Responsibility was checked directly to those who had undertaken to control production. In effect they were told: "You keep the supply within reason, and we, the marketers, will maintain possibly increase — the price structure."

It is to be noted that only the major purchasing companies were involved in the price cut of January and the price advance of April. However, the various independent purchasers and marketers in time met the April postings, and the crude market was fairly maintained throughout the following spring and summer months.

The first rift in the prevailing price structure under the prorationists came in September and was not of sufficient moment to be disturbing other than to foreshadow the inescapable operation of immutable economic laws. On Sept. 19 the Panhandle Refining Co. of Wichita Falls, Texas, taking exclusively from the Wichita Falls district, cut the price 30 cents per barrel under The Texas Co.'s postings. Thus began the price cutting orgy of 1930 which spread rapidly from that time.

On Oct. 1, other purchasers in the Wichita Falls fields took out a pile of chips and sat in the price cutting game. The Dale Refining Co. posted 25 cents under Texas Co. where pipeline delivery costs were 12½ cents, and 30 cents under where The Texas Co. pipeline delivery costs were 17½ cents. The Primrose Refining Co. went 15 cents under The Texas Co. price, and the American Refining Co. went 25 cents under. Combined, these companies were taking 8000 barrels daily from the field at prices far below the price posted by the conservationists.

On Oct. 8, The Panhandle Co. again posted new price schedules, the cut being 40 cents and 45 cents below The Texas Co. It

began to look like war. On posting the new schedule company officials explained that "change in conditions since the price reduction Sept. 19 make this new schedule necessary."

This price structure revision was met by practically all of the so-called independent marketers of the North Texas district.

By October the price cutting had spread to Oklahoma. On the 13th of that month the Champlin Refining Co. of Enid slashed the market 30 cents a barrel.

THE effect of these assaults upon the price structure by the independents was inevitable and unavoidable. On Oct. 16, North and East Central Texas fields had earned price schedules of their own, and The Humble Oil & Refining Co. met the reductions of the independents in those districts. Other major purchasers involved fell in line.

In announcing the new price schedule, President Farish explained:

> "When any considerable amount of oil is being sold from any field at less than the posted price, as is now the case in certain areas, the lower price establishes the market, and a readjustment of the posted price must inevitably follow."

But the "sale of oil below posted price" was not stopped. It went merrily on.

On Oct. 22, The American Refining Properties announced a further cut. On the same date the Eason Oil Co. met the cut of the Champlin company announced Oct. 13, and was taking 4700 barrels daily at the reduced figures. In the meanwhile The Cushing Refining & Gasoline Co., with daily takings of 3500 barrels, had announced a cut.

The posted price in Oklahoma for 38 gravity still stood at the April 10 figure, $1.36 per barrel. No major purchasing company had as yet made a reduction in posting. But with substantial quantities of Oklahoma crude being purchased below that figure it was becoming increasingly evident that proration for the purpose of maintaining the price structure had failed and something would have to be done about it.

On Oct. 25, the Stanolind Crude Oil Purchasing Co. revised its posted schedules for the purpose of bringing them into reasonable conformity to the action of the independent purchasers.

The new schedule cut the price of 38 gravity oil from $1.36 to $1.01, and other grades, both above and below, proportionately. The Carter Oil Co. further revised this schedule. In its postings quotations stopped at "40 gravity and above," instead of carrying price increases to the 44 gravity grade. Other major purchasers met the new schedule and by Oct. 28 the postings again harmonized.

President R. S. Ellison of the Stanolind explained the action of his company:

> "Competitive conditions force us to reduce the price we can offer to pay for crude oil in the Mid-Continent field."

But again a broad reduction in the official postings of the majors failed to stop the price cutters.

On Nov. 18, Champlain Refining Co. of Enid again slashed the price structure, top price for 40 and above reading 87 cents, met by Eason of Enid on the following day. Various marketers of the North Texas district also applied the knife.

Gradual withdrawal of the Prairie Oil & Gas Co. from the market as a purchaser increased materially the quantities of distress oil, and the opportunities to buy at below the market. On Dec. 5, the Prairie company gave notice that effective Jan. 1, it would withdraw all quotations and retire completely as a purchaser of crude oil. The oldest, and for decades the major, market factor in the Mid-Continent field had quit. Demoralization was now a condition instead of a theory.

ALMOST any quantity of oil that might be named could be had at below the market if the conservationists who had undertaken to preserve the price structure would allow. As a matter of fact, large and increasing quantities of crude were being sold far below the pegged price.

A confidential report prepared during the closing days of 1930 indicated that in the North Texas district there were 13,538 barrels being sold daily at approximately 38 cents below the market; in Oklahoma 17,200 at from 12½ to 39 cents below the market.

On December 29, just as the year was dying, and three days before the date set for the withdrawal of the Prairie, Champlin of Enid slashed out desperately. He posted a flat price of 67 cents for all grades regardless of gravity, which in practice amounted to a slash of 40 cents per barrel for 40 gravity and above. This was met by the immediate competitors of the Champlin company.

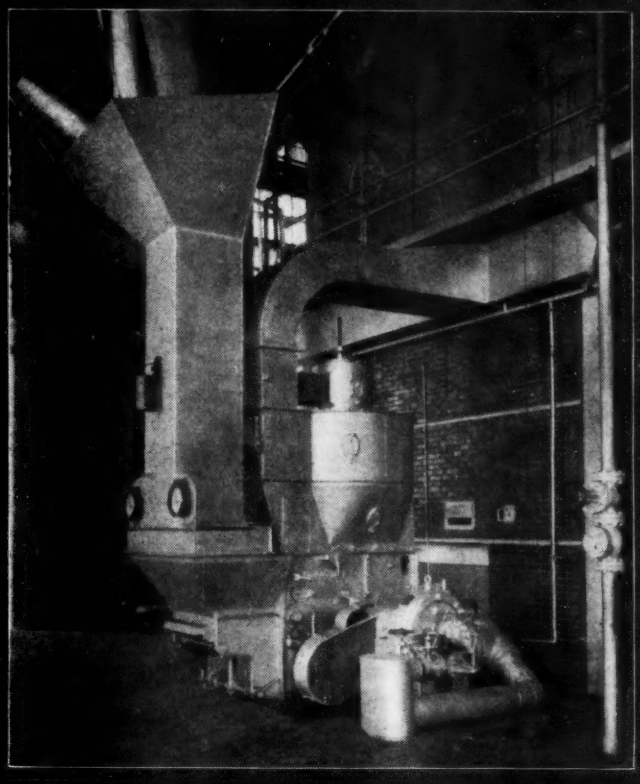
Reports show that during January and to the middle of February the amount of Texas, Oklahoma and Kansas oil actually sold under the pegged prices set up by the prorationists held fairly steady at around 36,492 barrels daily.

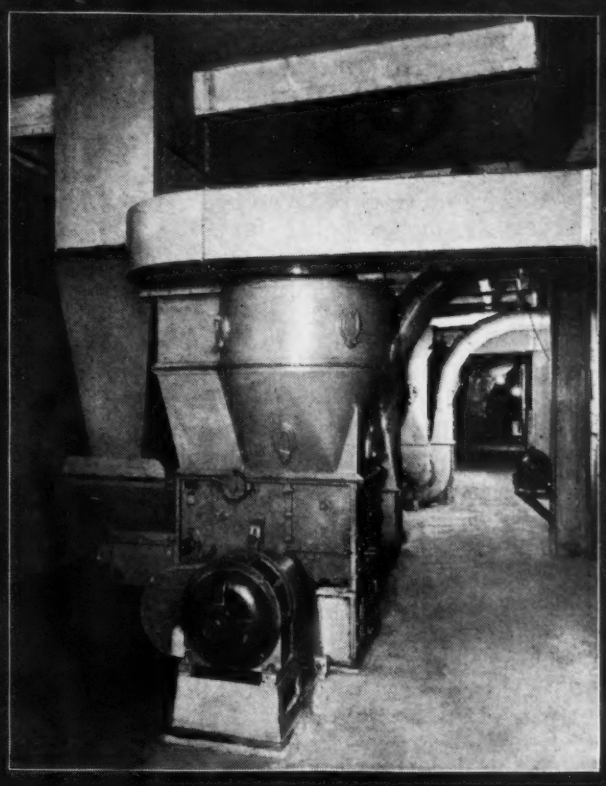
ON FEB. 4, 1931, The Sinclair Refining Co., which had been out of the market for some months, announced its return as a common purchaser with daily requirements of 50,000 barrels, and posted a flat price of 67 cents for the Oklahoma City field.

The repercussion of this was felt on Feb. 25. when the American Refining Properties in the North Texas field, where the price cutting movement had first started nearly a year earlier, posted a new schedule with a top price of 60 cents a barrel for highest gravity oil. The Dale Refining Co. met squarely the Sinclair price of 67 cents a barrel. The Olney Refining Co. posted a flat price of 65 cents. The Primrose Refining Co. cut this to 60 cents, and Iowa Park Refining Co. posted 72½ cents, less delivery charges to its refinery of 17½ cents. In Kansas the Kanotex refinery posted a flat price of 75 cents.

It is estimated in confidential reports that during the last days of February 1931 the amount of oil sold in Texas, Oklahoma and Kansas below the pegged price had grown to a total of from 125,000 to 150,000 barrels daily.

Bootlegging had crept in to discredit another noble experiment. But the strain became unbearable. Marketers purchasing crude at 60 cents a barrel





# TWO HIGH STANDARDS SET

by

# UNIPULVO

UNDERFED UNIT FUEL PULVERIZER

**STANDARD OIL CO. OF OHIO**
Toledo, Ohio
First machine handling 4000 lbs. petroleum coke or coal per hour

**BUREAU OF STANDARDS**
Washington, D. C.
Four machines with total capacity 10,000 lbs. coal per hour

These high standards are characteristic of THE UNIPULVO SYSTEM no matter where installed ~ ~ under boilers of all sizes and types from 100 H. P. H-R-T upward, burning any bituminous coal, lignite, petroleum coke

## THE STRONG-SCOTT MFG. CO.

Minneapolis, Minn.

In Canada
The Strong-Scott Mfg. Co., Ltd.
Winnipeg, Man.

In Great Britain
John Thompson Water Tube Boilers, Ltd.

had a decided edge on marketers who were buying under the pegged price of $1.01. Since the politico-economists who had undertaken to maintain the price structure by rigidly limiting the amount of oil to be sold had so utterly failed in both purposes; since more and more oil was being freely vended at below-market figures; and since more and more producers were offering to sell below the pegged price, something had to happen.

This occurred on March 5, 1931, when the Stanolind Crude Oil Purchasing Co. revised the entire price schedule by cutting the top to 67 cents and other grades to 40 and above proportionately. The Magnolia, Continental, Standard of Kansas and Sinclair met the new schedule on March 6, and the Carter, Gulf, Texas and Empire March 10. The repercussion of this price reduction was felt in practically every other American field.

The explanation made by President Ellison of the Stanolind of the step his company had taken was significant. Said he in part:

> "For some time we have known that competing companies were buying large quantities of crude oil at prices very substantially less than we were paying. Reliable information indicates that such out-price buying has reached the staggering amount of 100,000 barrels a day. We can no longer ignore this condition."

Which being interpreted meant that the politico-economists having failed completely to limit the supply of oil, the Stanolind, speaking the opinion of all other major purchasers, confessed the inability of the majors to maintain further the price structure.

A recapitulation analysis discloses some interesting features. During the 14-month period since the politico-economists had taken charge of the Mid-Continent oil industry with a view of maintaining the price structure, there had occurred five price revisions by the major purchasers, each of which had been made in the first instance by some one of the group of Standard Oil companies, all of which were energetically supporting the politico-economic program. The fact is stated without suggesting significance, other than that therein is implied a recognition of the utter failure of the proration-conservation experiment to curtail production by such methods.

But while the majors were thus revising the market, once up and four times down, there had been approximately a score of price cuts by the various independents, each carrying the price lower and lower, none of which appears to have in any manner reduced the supply of oil available at the lower figure.

There had been 12 such price cuts prior to the time that the Sinclair Refining Co. posted its price of 67 cents Feb. 14; with actual daily sales thereunder totaling the "staggering amount of 100,000 barrels," as stated by President Ellison of the Stanolind.

Such being the facts, and the record, it is puzzling that Sinclair interests should be credited with wrecking the oil price structure.

In 14 months of control by the prorationists, who had set out to maintain the price structure, the price had been driven steadily downward by four price revisions at the hands of the majors and approximately a score by the independents, from a top of $1.57, the scheduled price for "44 and above" in the April 10th schedule, to a top of 67 cents in the March 5, 1931, schedule; the visible supply of crude, which was to be curtailed, had doubled two or three times over, and the oldest purchasing agency in the field had been driven from the market.

## Gulf Starts Laying Cincinnati Line

PITTSBURGH — The Gulf Pipe Line Co. of Pennsylvania has started construction on its 51 miles of eight-inch line from Dublin, Ind., to Cincinnati. Main line from Oklahoma passes through Dublin and ends near Lima, O., where oil is delivered to the Buckeye Pipe Line Co. for movement to refineries at Toledo and Pittsburgh.

The line to Cincinnati will serve the 12,000-barrel capacity refinery now under construction. May 1 is set as the probable completion date for the pipeline, although it is not expected that the refinery will be ready to operate that soon.

---

TULSA — Mrs. Keith E. Crouse, wife of the Prairie Oil & Gas Co.'s zone agent in New Mexico, died at Roswell, March 24, after a long illness. Burial was at Lawrence, Kans.

## Big Lake Production Curb Protested

AUSTIN, March 28.—Answering the charge that the two companies controlling the Big Lake field of Reagan county, West Texas, had been wasting gas energy in the field, Charles E. Beyer, general manager of the Big Lake Oil Co., testified before the railroad commission about reductions attained.

Gas production with the oil had been reduced, he said, from 80,000,000 cubic feet daily to 40,000,000, until a recent well forced it back again to 60,000,000 cubic feet.

His company, Mr. Beyer said, had used every scientific method known to the oil industry in dealing with the gas/oil production from the 8200-8900 foot producing horizon; and, he continued, had reduced the oil/gas ratio below that recommended last fall by David Donoghue as technical advisor to the Central Proration Committee of Texas.

Mr. Beyer was protesting against the committee's recommendation to the railroad commission that Big Lake field production should be cut from 20,000 barrels to 12,000 barrels in the awaited prorating order due to become effective April 1. He was also protesting against a recommendation of the University of Texas, on whose land the field is located, for shutting in all the wells producing below 8000 feet.

The Central Proration Committee has indorsed the University Board of Regents recommendation.

# Proration, Properly Applied, Can Be Used As Efficient Conservation Measure

By S. W. Collins*

IN THE good old days when a new pool was discovered, the wells were allowed to flow wide open, and the main idea was to get as much oil as quickly as possible, in order that the offset lease would not get a greater proportion of oil from the common reservoir than you did, or before the price of oil dropped. This method allowed the gas to blow in the air, and every operator in the pool drilled as many wells as possible to get the oil before the gas pressure left the sand. This naturally caused a big drilling campaign, and a "boom oil field" with a large peak production, and a sharp decline as soon as the pool was drilled up.

In the days of the cable tool drilling, it took much longer to drill a well than it takes to drill with rotary tools today, so the effect of unrestricted drilling and producing was not as devastating as it is today. A 4000-foot hole that took from 6 to 8 months to drill with cable tools is now drilled in from 30 to 60 days with rotary tools.

The efficiency in drilling has increased to where a new oil pool can be a menace to the market 90 days after the discovery well has been found. This fact was recognized by the leaders of the industry over three years ago, when proration of oil was first started to prevent bringing oil to the surface beyond market demands.

The oil business is going through a series of changes, and we cannot go back to the oil method of drilling and producing oil (much as we would like to) without bringing on disaster.

Those who are opposed to proration do not see the change that has come to the industry. They are overlooking the large number of pools that have already been discovered and have only been just scratched with a few wells, just waiting for the rotary drill to put another flood of oil on the market, not a year from when drilling is started, but 90 days. They are overlooking the scientific methods of finding new pools. One wildcat discovery well could open a new pool that 90 days later might easily put 100,000 or 200,000 barrels of oil on the market. This is now recognized by the majority of producers, and co-operative control of production has been imperative to prevent chaos in the oil industry.

MR. COLLINS, an engineer, has for the past two years been engaged in proration work in Oklahoma and at this time is district umpire covering the Konawa and Tatums pools. His ideas on the function that proration may be made to serve are set forth in the accompanying paper.

Proration is now regarded purely as police control of production to enforce ratable taking of oil out of a common pool—a necessary evil to be discarded as soon as possible. But proration is true conservation to prevent waste of oil, and can be of tremendous benefit to the efficient production of oil from flush pools.

It has been recognized for a number of years that a gas well left to flow wide open, soon depletes the gas reservoir, and is injurious to the whole gas field. Less than 25 per cent of the open flow has been determined by numerous tests to be the most efficient flow for a gas well, and 25 per cent maximum flow has been made a part of the laws of Oklahoma. Gas is the principal force that brings oil to the surface in flush pools, and oil should be produced with a minimum gas waste.

Equalization of pressure in a pool is desirable so that the maximum amount of work in lifting oil out of the hole will be done by the minimum amount of gas, i. e., as low a gas-oil ratio as possible. This ratio should be determined by tests for each pool, and the average ratio for efficient flow established. But it must be a co-operative move on the part of all operators in the pool, as it is obvious that part of the operators would not flow their wells through chokes and under back pressure while part of them were flowing their wells wide open. In fact, one operator opposed to the plan could upset the plans of all operators if it were not for proration.

Proration, when applied on the percentage plan, can be used to enforce the allowed amount of oil from each lease so as to have the proper gas-oil ratio for any given pool; and not just a police power to hold back a flood of oil. We have pools that are now being operated efficiently due to prorations. Many operators are using chokes in their wells, and are operating under low gas-oil ratios. Poor operators do not upset the plan for they can only take their allotted amount of oil.

In a gas well the allowed volume of gas is a certain percentage of the open flow volume with open flow tests made at regular intervals, or pressure volume tests made that are

equivalent to open flow tests without gas waste.

In an oil well, you have both gas and oil to consider, and a variable efficient gas-oil ratio for different pools, and even a wide variation of the efficient gas-oil ratio within any given pool. However, an average efficient gas-oil ratio for any given pool can be established by tests. But the standard of measure of an oil well is the open flow volume of oil for a given length of time, and the volume of oil allowed to produce determined by this open flow test, or potential.

During normal times, the percentage of the potential that determines the allowed production should be made to conform to the average efficient gas-oil ratio or equalization of pressure. The average efficient gas-oil ratio would be used only to determine the correct percentage of allowed production to potential.

Potential would have the same meaning for an oil well that an open flow test has for a gas well. It would only mean the gauge that is used to opportion out the oil in a given pool to the different owners of that pool. It would be a substitute for unitization of a pool where it was impractical or impossible to unitize the pool. It would also apply to unitized pools, but its need would be less there because the object of unitization is to operate efficiently. The size of the pool, or "Pool Rating" would be measured by the amount of allowed production under efficient flow, and not by its potential.

In times of extreme overproduction where it is imperative to hold pools below their efficient flow, the new pools would be the first to be put under proration below their efficient flow; the amount of proration in excess of efficient production of oil to be applied in proration to the age of the pool.

New pools should take the blunt end of proration beyond efficient flow, old pools that are already under efficient production methods should not be penalized because of the discovery of new pools. Every pool would have a "pool rating" which would be the "standard gauge" for making comparison between different pools. This would make it easier to establish equitable proration between pools.

Potentials should not be used to determine the size of the pool, because of the different methods of taking potentials. A pool that bases its size on a thirty minute gauge, would be different than one based on a 24-hour gauge, or one based on a five-day gauge. The various ways of taking potentials are necessary to meet the requirements of each pool and are fair methods of apportioning the oil to the various lease owners who own the pool.

But when you say one pool based on a short time potential is producing five per cent of its potential and another pool based on a five-day gauge is producing 50 per cent of its potential, the comparison is wrong. "Pool rating" would establish a better method of comparison. For example, take the Oklahoma City pool:

Suppose after making careful gas-oil ratio tests, water coning, etc., and taking into account the gas that would be wasted by blowing into the air, the operators would find that, say ten per cent of the present potential is all the production that the pool should be allowed to produce for efficient flow and minimum gas wastes.

The present potential of the pool on a four-hour test is about 6,000,000 barrels, but the "pool rating" would be ten per cent of the potential or 600,000 barrels. Say the actual production for February is 100,000 barrels per day, then the pool would be producing a 16 2/3 per cent of its "pool rating," and the shut-in production would be 500,000 barrels per day. By having all pools on the same basis, it would be easier to make comparisons between pools and would be a more accurate gauge as to the size of the pool and the amount of shut-in production.

The basis of this plan would be:

1. The greatest ultimate recovery of oil with the least gas waste as the prime factor. This would require (a) a ratable taking of oil, (b) the allowed production of a pool not to be greater than the "pool rating" as defined in No. 3.

2. The allowed oil production to be based on potentials and decline curves.

3. During normal times the per cent of the allowed production to potential, or "pool rating" would be based upon (a) minimum average, gas-oil ratio, (b) minimum gas waste.

4. During period of over-production the per cent of allowed production to potential would be based on ratable taking of oil, but the size of the pool would be based upon its "Pool Rating."

## Standard Gives Relief To Distress Wells

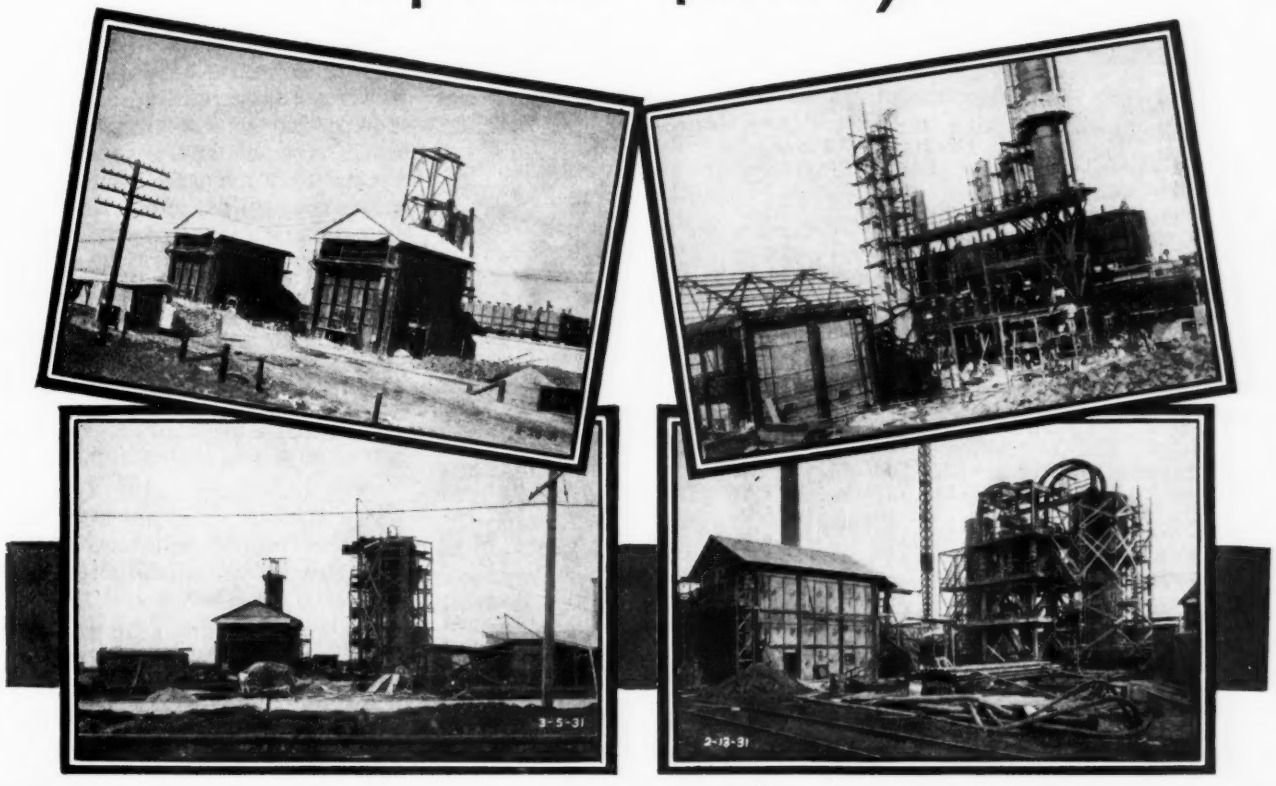
TULSA, March 28.—Provision for the completion of its 300,000-barrel order for crude oil from distress stripper wells of Kansas was made March 27 by the Standard Oil Co. of Indiana. It is taking the oil at its Wood River, Ill., refinery, with gathering services performed by the Prairie Pipe Line Co. and delivery service performed by the same company. Prairie Oil & Gas Co., which formerly bought the oil from the producers affected, acts as the Standard's agent in filling the order.

In completing the arrangement, the Standard ordered 6000 barrels daily to be delivered up to April 14. After that it will take 2000 barrels daily on a permanent basis. This is in conformity with its agreement made at a recent conference with Governor Woodring of Kansas. At that meeting other buyers agreed to take a total of 2300 barrels daily.

---

WASHINGTON—Government subsidy for the production of crude oil from shale has been obtained by an Italian company generally known as A.B.C.D., from the government of Italy. This company owns large deposits of bituminous limestone near Ragusa and Vizzine in Sicily, said to contain as high as 12 per cent of oil. The company, under the subsidy, must erect at its own expense a plant of 50,000 ton yearly crude oil capacity.

# These Badger Units under Construction show that Progressive Refiners are spending money NOW to reduce costs and improve quality.




# E.B.BADGER&SONS COMPANY

# More Than 10,500,000 Acres Leased in West Texas

HOUSTON

WEST Texas leaseholds carried by 25 principal operators increased approximately 370,550 acres in 1930, despite surrenders of nearly 950,000 acres in that period, according to land department statistics now available.

The year ended with total leases in force aggregating 10,595,729 acres compared with 10,225,179 acres, Dec. 31, 1929. No statistics were available covering holdings of smaller companies and individual operators, but it is estimated they would total at least 2,000,000 acres, distributed among many owners.

Purchases in 1930 represented mainly the taking of "protection" leases.

No acreage campaigns were conducted rapidly and far afield after the manner of "land plays" such as were stimulated by early discoveries.

Surrenders, often totalling more acres than new acquisitions, were made possible by geological data furnished by unsuccessful tests in the region, or in some cases such releases marked the expiration dates of term leaseholds.

Of the seven largest leaseowners in West Texas only one, Shell Petroleum Corp., ended 1930 with less acreage on its books than a year previously.

The Shell showed a decrease of nearly 125,000 acres, but in the earlier history of the region it bought farther afield than many other operators.

Notwithstanding the Phillips Petroleum Co. took over nearly 200,000 acres from Independent Oil & Gas Co., when the two corporations merged, the Phillips total net leaseholds declined 43,573 acres in 1930.

Stanolind Oil & Gas Co., producing subsidiary of the Standard Oil Co. of Indiana, also shows a drop of 37,601 acres in spite of the adjustments incident to its taking over the Midwest Exploration Co., the Dixie Oil Co., Inc., and the McMann Oil & Gas Co., all wholly or partly owned by the Indiana parent.

Increases varied from 4935 acres, by Prairie Oil & Gas Co., to 142,643 acres in individual cases. Included were 44,063 acres by Sun Oil Co.; 33,816 acres by Amerada Petroleum Corp.; 37,992 acres by Sinclair Oil & Gas Co.; 2220 acres by Texas Pacific Coal & Oil Co.; and 9790 acres by Southern Crude Oil Purchasing Co.

**Table Showing Acreage Holdings of Principal Oil Operating Companies in West Texas Region**

| | Standing Company | Holdings 1929 | Purchased 1930 | Released 1930 | Holdings 1930 |
|---|---|---|---|---|---|
| 1 | Humble | 1,532,019 | 225,877 | 130,651 | 1,627,245 |
| 2 | Gulf | 998,224 | 66,525 | 22,440 | 1,042,309 |
| 3 | Continental | 737,703 | 143,352 | 110,393 | 770,662 |
| 4 | Shell | 864,515 | 62,503 | 186,889 | 740,129 |
| 5 | Atlantic | 538,404 | 197,927 | 40,535 | 695,796 |
| 6 | Texas | 479,226 | 98,879 | 11,440 | 566,665 |
| 7 | California | 523,400 | 45,342 | 20,353 | 548,389 |
| 8 | Phillips* | 534,330 | 64,010 | 107,583 | 490,757 |
| 9 | Magnolia | 529,939 | 24,718 | 70,908 | 483,749 |
| 10 | Sun | 375,310 | 67,273 | 23,210 | 419,373 |
| 11 | Amerada | 331,640 | 41,320 | 7,504 | 365,456 |
| 12 | Pure | 401,775 | 1,240 | 38,389 | 364,626 |
| 13 | Republic | 354,961 | 4,214 | 12,839 | 346,336 |
| 14 | Stanolind** | 370,233 | 20,274 | 57,875 | 332,632 |
| 15 | Sinclair | 289,355 | 42,799 | 4,807 | 327,347 |
| 16 | Empire | 289,399 | 6,228 | 8,385 | 287,242 |
| 17 | Texas Pacific | 277,430 | 10,320 | 8,120 | 279,630 |
| 18 | Mid-Kansas | 96,866 | 152,851 | 10,208 | 239,509 |
| 19 | Southern Crude | 153,554 | 19,646 | 9,856 | 163,344 |
| 20 | Prairie | 147,986 | 9,052 | 4,117 | 152,921 |
| 21 | Tidal | 158,791 | 6,807 | 12,907 | 152,691 |
| 22 | Simms | 93,400 | 5,280 | 32,180 | 66,500 |
| 23 | Mid-Continent | 55,986 | 3,008 | 9,971 | 49,023 |
| 24 | Barnsdall | 51,900 | 720 | 4,498 | 48,122 |
| 25 | Vacuum | 38,833 | 96 | 3,653 | 35,276 |
| | Totals | 10,225,179 | 1,320,261 | 949,711 | 10,595,729 |

*—Phillips took over a total of 191,488 net acres from Independent when these companies merged. Independent released 3,116 acres and purchased 23,094 acres in 1930 previous to merger.

**—Stanolind took over 19,416 acres from McMann; 44,000 acres from Midwest; and 269,216 net acres from Dixie. Acquisitions and releases shown under Stanolind above were made by Dixie during the year.

# California Light Crude Prices Cut by Union

(By Telegraph)

LOS ANGELES, March 30.—R. D. Matthews, executive vice president, Union Oil Co. of California, announced effective March 30, a reduction in prices of California crude oil, which penalizes high grades while low gravity oils are not affected. The reduction reverses former price postings by posting higher prices for heavy oils, and lower prices for high gravity oils.

Price schedules in the Los Angeles basin fields will range from a top price of 65 cents for 14 to 20 gravity crude; while each succeeding degree of gravity up to maximum grade of 30 gravity, takes 3 cents less, making 30 gravity crude and above, 35 cents per barrel.

Prices in San Joaquin Valley fields range from a top price of 55 cents for 14 to 19.9 gravity oils, with a 2 cent decrease for each succeeding degree of gravity, making maximum grade of 29 to 29.9 gravity 35 cents.

For the time being the company discontinues posting prices for Kettleman Hills and Playa del Rey as to discourage drilling.

New prices are said to represent values obtainable from different grade crudes under existing marketing conditions. Lighter gravities bear the burden since gasoline prices after deduction of state tax are insufficient to cover cost of raw material, manufacturing and distribution.

# Production Control Theme of Meeting Of A.P.I. Mid-Continent Section

TULSA, March 28

METHODS of controlling production occupied the attention of the spring meeting of the Mid-Continent district production group of the American Petroleum Institute March 27. Every paper included a plea for control within the industry.

Outstanding in a group was a paper by J. R. McWilliams, petroleum engineer of the Skelly Oil Co., on "A Plan for the Better Utilization of Gas Energy." Briefly, the plan is a suggestion for the control of production from a pool by the limitation of the volume of gas produced with the oil. This does not mean an arbitrary gas-oil ratio, but rather is it a division of the gas by volume among the operators in a common pool, in order that its inherent energy may be utilized to the greatest possible advantage in increasing the ultimate yield.

Setting aside all consideration of porosity, permeability and other factors that may not be definitely known, the McWilliams plan was based entirely on the volume of gas produced at the well head. The measurement of this volume on each well and the assignment of an allowable per well volume for the pool, on a basis of the quota of proven acres per well and the holdings of the operator, was the major premise of the plan. The idea behind the proposal was the holding up of the reservoir pressure by the slowing down of oil and gas production.

It was contended that the procedure for controlling gas volumes should begin with the discovery well in a pool, continuing during the development period and as long as the wells flow their production. Drastic restriction on the first well was advocated, with no large amounts of gas production anywhere until the major portion of the wells were drilled. The gas allowance might then be increased to whatever the extent the underground and market conditions warranted, but in no case should the flush field produce in excess of 50 per cent of its potential.

In the case of a well producing only gas from the same stratum from which other wells in the pool are obtaining their oil, a complete shut-in was suggested, the owner to be re-imbursed for his loss in revenue from the sale of gas by the proration of gas sales from the pool as a whole.

Administration of the plan could be put in the hands of a group of operators, all familiar with field requirements, and empowered to enforce the fixation of the periodic gas-acre allowances to best meet the requirements of the whole field. Discussion of the McWilliams paper occupied the greater part of an afternoon, with the author on the defensive throughout the period.

IN AN extemporaneous talk on "Overproduction and Why," R. S. McFarland, vice-president of the Sunray Oil Co., laid particular stress on royalty promotion as one of the major factors in bringing about overproduction. Short lease terms and the promotion driller were also mentioned as causes for much of the present difficulties. The work of the company engineer and geologist however, raising as it has the industry to a plane of efficiency so far above that of previous years, has been the principal factor leading to a surplus of crude both below and above ground.

The potentials build up by this efficiency are, according to Mr. McFarland, coming to have a ficticious and much misunderstood meaning because of short time gauges.

H. M. Stalcup, vice president of the Skelly Oil Co., in a paper on "Some Economic Aspects of Oil Production Methods," indicated that the "frenzied haste indulged in in carrying on development work" has been a potent factor in bringing about the present economic condition of the industry.

It was pointed out that records of the past have too often been kept on a lease basis and too little study put on the individual well. A shift is taking place in this regard with a number of major operators, and the single well is receiving detailed attention in a way that will lead to economies unthought of a year or so ago.

MR. STALCUP mentioned as a logical development a pronounced tendency on the part of neighboring operators to join forces in effecting economies. The combining of properties, even those long beyond their flush periods, under one operating head is now a recognized practice.

Carrying the discussion of unit operation further, R. F. MacArthur, vice president of the Barnsdall Oil Co., in a paper on the subject, indicated that the industry had failed on the old competitive basis and that now the time had come when working together, through the unit development plan.

The speaker indicated that a strict enforcement of a gas-oil ratio law in this country would probably solve the problem of overproduction. This would lead also to the conservation of gas energy and undoubtedly bring a greater ultimate recovery.

W. K. Whiteford, division superintendent of the Barnsdall Oil Co., was elected chairman of the A. P. I. division. D. L. Trax, engineer, Gypsy Oil Co., was elected vice chairman. Ernest L. Bell, Deep Rock Oil Corp., was re-elected secretary-treasurer.

REGARDLESS of the type of crude your distillates may be derived from treatment with the solvent liquid $SO_2$ in place of acid will show to advantage..... resulting in superior finished oils, reproducible products and elimination of treating losses.

**EDELEANU COMPANY, LTD.**

11 West 42nd Street

New York City

**IF OUR figures are right—and** they seldom are anything else—the proposed tax to pay for proration of one-twentieth of one per cent on the gross value of oil produced in Oklahoma will yield enough money to employ 130 umpires at salaries of $200 per month and expenses of $150.

That would not be one umpire per pool; in some cases one man might have to double on two pools, such as Bird Creek and Sperry. But it would make a lot of jobs and would relieve the unemployment quite a little. Each state senator and representative could appoint a man and there would be a few left over for governor's patronage.

Now, there must be some figuring ahead to keep these boys employed in that remote time when production will not be equal to the demand. Obviously, if and when such a blessed condition prevails, there will be no need of proration. We have the solution, we think, and we pass it along for the best minds in statecraft to consider.

When production finally gets below consumption, let there be a reversal of the principal of rotable taking, applying it to the refiners. If production is, say 10 per cent below the amount all buyers want, then each buyer must reduce his portion by that amount. Then the umpires could be taken off the wells and put on the refineries.

* * *

**The latest hearing before the** Oklahoma corporation commission on prorating the Oklahoma City field left us wondering what customary step had been omitted. Finally we placed it. Ray M. Collins, umpire, was not put on the stand to testify as to his salary. The whole record, probably, should be thrown out.

Mr. Collins has been in that courtroom almost constantly for the past four months. Some say he sleeps there. It is told of him that he recently went to church on Sunday morning, there being no hearing that day, and when the pastor asked the congregation to stand, the umpire held up his hand to be sworn.

* * *

**E. E. Roper, formerly sales** manager of the Peerless Refining Co., Chanute, Kans., will occupy a similar position at Chanute when the refinery resumes operations. It was recently purchased by the Altitude Petroleum Corp. of Tulsa, and will operate under the Altitude name.

* * *

**Mr. Ellick Botts, consulting** pumper, called upon Gov. "Alfalfa Bill" Murray last week and reports that the Sage of Tishimingo will go far in his bid for the presidency. Mr. Botts bases his conclusions upon two findings: (a) the governor loves to sit with his feet upon his desk and, (b) he always wears his hat in the office. These touching evidences of the democratic spirit, reasons Mr. Botts, will be certain to catch the votes of the country grocery and the urban pool hall statesman.

* * *

**These comments out of a let**ter from L. D. Wyant, manager of operations for Bethlehem Steel Co. on that refinery being built for the Spanish government at Santa Cruz de Tenerife, Canary Islands:

"We are now having our second revolution in these islands since I came. Judging by these the folks who lived in '76 may not have had such an exciting time as we used to lead innocent little children to believe. A visit to modern Chicago is, autos included, much more hazardous. . . ."

* * *

**Born: To Mr. and Mrs. Wal**ter W. Larsh, Wichita, a girl, third child. Mr. Larsh is district geologist for the Stanolind Oil & Gas Co.

* * *

**Mr. and Mrs. J. A. Vickers,** Wichita, have returned from a winter vacation spent in California. Mr. Vickers is head of the Vickers Petroleum Co.

* * *

**The new town of Altman,** Texas, in Moore county, is now Sunray. Near there the Sunray Oil Co. is operating a producing field and a refinery is being built that will afford partial outlet for the oil.

* * *

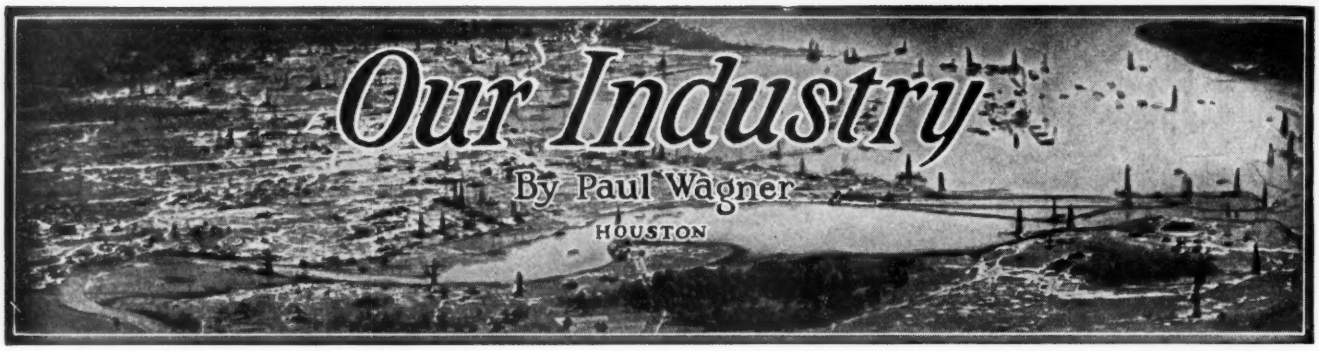
**Died: In Tulsa, Edwin N.** Fischer, president of the Enfisco Oil Corp. He was 63 years old.

* * *

**Friends and business asso**ciates of Frank C. Henderson, president of the Henderson Co., to the number of more than 100, helped observe the 73rd birthday of this veteran natural gasoline manufacturer on March 6. A reception was held in the Henderson offices in Tulsa. Mr. Henderson has participated in the Mid-Continent development for more than 30 years.

* * *

**Mr. and Mrs. James A. Veasey** are in Daytona Beach, Fla. Mr. Veasey, general counsel of the Carter Oil Co., is recuperating from a recent serious illness and the doctors prescribed plenty of warm weather and loafing.




**JOE P. GILLEN of Houston,** and Fort Worth associates, are going ahead with plans for a skimming plant refinery at Overton, on the International & Great Northern arm of the Missouri Pacific railroad system, to operate on East Texas crude oil. Mr. Gillen was for years connected with the Deepwater Oil Refineries, Inc., operating a Houston ship channel lubricant plant, of which he was general superintendent. Previously, he served major refiners such as the Standard Oil Co., at Baton Rouge, and The Texas Co., in the Port Arthur district.

* * *

**James H. Jenkins, vice president** and production manager of the Associated Oil Co., has returned to San Francisco headquarters after an eastern trip that included a stopover in Texas on his way back. Before going to the Pacific Coast more than two years ago, Mr. Jenkins was vice president and general manager of the Tidal Oil Co. of Texas, subsidiary of Tide Water-Associated Oil Co., with Fort Worth headquarters.

* * *

**G. C. Calhoun is now stationed** at Kilgore, East Texas, representing Black, Sivals & Bryson, tank manufacturers, in the Cregg-Rusk development area. He was formerly at Beeville, South Texas.

* * *

**Blaine Johnston has been** transferred to Longview by Simms Oil Co., to take charge of its East Texas development in the Gregg county area. He was previously in South Arkansas as production superintendent for Smackover territory.

* * *

**E. V. S. Lowerre of the Pure** Oil Co.'s scouting department has been transferred from West Texas to the Rusk-Gregg district, making his present headquarters at Longview.

* * *

**H. N. Seevers of the Gulf** Production Co.'s. geological department has been transferred to Corpus Christi from the Wichita Falls district.

* * *

**Delmar Gouin of the Empire** Gas & Fuel Co., Cities Service subsidiary, is now at Roswell as New Mexico district geologist.

* * *

**Sam Gladney, southern Ar**kansas division superintendent of the Sun Oil Co., Dallas, has been dividing his time with the Gregg-Rusk district of East Texas, where the Sun holds considerable acreage for development.

* * *

**Max Thornburg and H. C.** Hanna have assumed managerial posts at the Richmond and El Segundo refineries respectively of the Standard Oil Co. of California. Thornburg was formerly chief engineer of the manufacturing department and Hanna superintendent of the El Segundo plant. Both have been long associated with petroleum manufacturing activities in the California Standard organization.

J. P. Gillen

* * *

**W. G. B. Coutts has returned** to Burma after nearly a year in Scotland, now serving as petroleum engineer for the British Burmak Petroleum Co., Ltd. He was formerly with the Nederlandsche Koloniale Petroleum Maatschappij.

* * *

**J. A. Kunkel now represents** the export division of The Texas Co., at New Orleans. He was formerly of the shipping division at New York City.

* * *

**H. K. V. Tompkins of the Gulf** Production Co.'s executive department has returned to Houston headquarters after a business trip to Mexico. He was accompanied by Mrs. Tompkins. Mr. Tompkins was formerly general agent of the Mexican Gulf Oil Co., at Tampico.

* * *

**Jimmy Hartsell, formerly a** Pure Oil Co. scout in West Texas, has become chief of police at Fort Stockton, Pecos county.

* * *

**Capt. J. F. Lucey, president** of the Lucey Petroleum Corp., Dallas, and southwestern chairman of President Hoover's relief committee on employment, has taken on extended activities. In co-operation with Nathan Adams and R. E. Harding, North Texas bankers, Capt. Lucey helped to establish Dallas headquarters for the administration of federal loans to finance community credit corporations in Texas for livestock purchases. Loans will be made from a $20,000,000 fund voted by Congress.

# Instrument for Surveying Boreholes

By Walton E. Gilbert*

THE apparatus to be described provides a means of tracing the courses of deep boreholes. The instrument itself is an intermittent recording, photographic, clockwork actuated clinograph, designed to chart consecutive inclinations from the vertical, and the corresponding horizontal direction of each inclination referred to a describent, or imaginary straight line, parallel to the longitudinal axis and definitely located on the periphery of the instrument.

In order to compute the actual horizontal direction of each recorded inclination from the vertical, it is, of course, necessary to orient the instrument by external means; that is, by a method independent of the instrument itself, the direction must be determined of an imaginary horizontal line projected from the instrument axis and passing through the describent.

The use of drill pipe to determine the orientation of the recording instrument involves the assumption that the twist or angular deformation occurring in a long length of drill pipe lowered into the borehole, is negligible. Angular deformations which may occur in a long length of drill pipe may be differentiated as follows:

1. Deformations resulting from unscrewing of joints or couplings,

2. Deformations resulting from friction between the drill pipe and the sidewalls of the borehole,

3. Deformations which result when the drill pipe conforms with the spiral course of the borehole.

4. Deformations which may result from inter-action of tension stresses with internal stresses generated when the drill pipe was manufactured.

With exercise of reasonable care, deformations of the first type listed above, will not occur. Regarding deformations of the second type, it has been found that the longitudinal motion of the drill pipe as it is lowered into the borehole, is effective in reducing the twisting effects due to friction, to such proportions that they cannot be discerned from small errors known to exist in the recording mechanism. Regarding deformations of the third type, one may use the apsidal angle correction evolved by Professors Carl Heuman and Fritz Carlson, in their exemplary statement of principles, upon which the "Kiruina" method of borehole surveying is based. We have found, however, that it is usually unnecessary to apply this correction due to the smallness of the vertical inclination angles ordinarily encountered. Regarding deformations of the fourth type, while we have no method of evaluating such errors directly, it may be said that consistent check surveys are obtained when two, or even three, different sizes of drill pipe are used on different occasions to orient the instrument in a particular borehole. This leads us to conclude that the assumed errors, if present, are proportional to the length of the drill pipe but are not related to the other drill pipe dimensions, as might reasonably be expected, if they are large enough to be important.

### Description of the Instrument

The recording instrument consists essentially of a pendulum with a gimbal mounting, a cylindrical film and a clockwork mechanism (see Plate

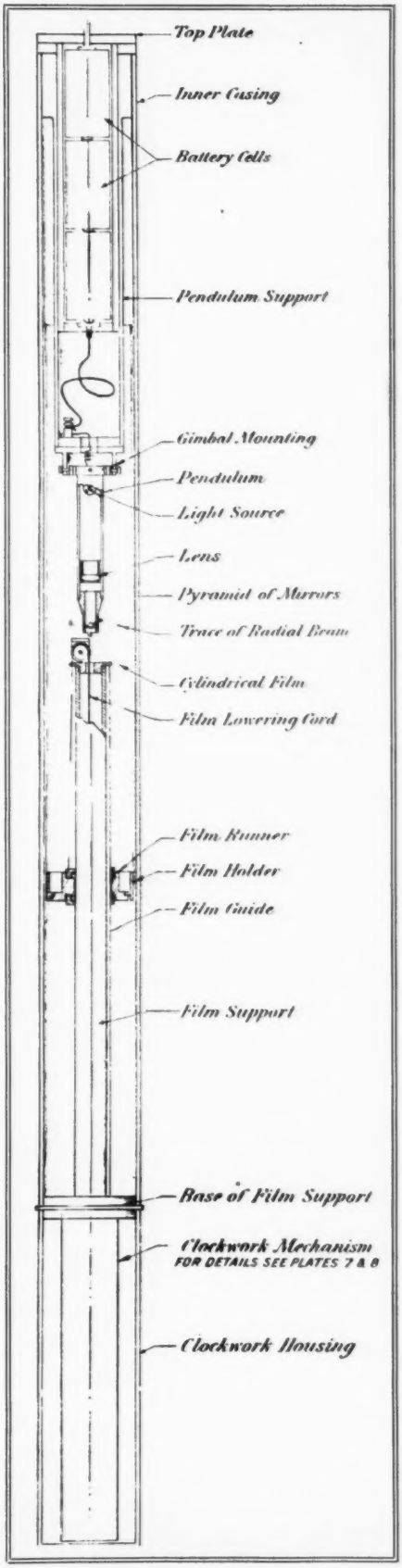



**Plate 1—Generalized sketch of Clinometer assembly**

*Engineer, Shell Oil Co.

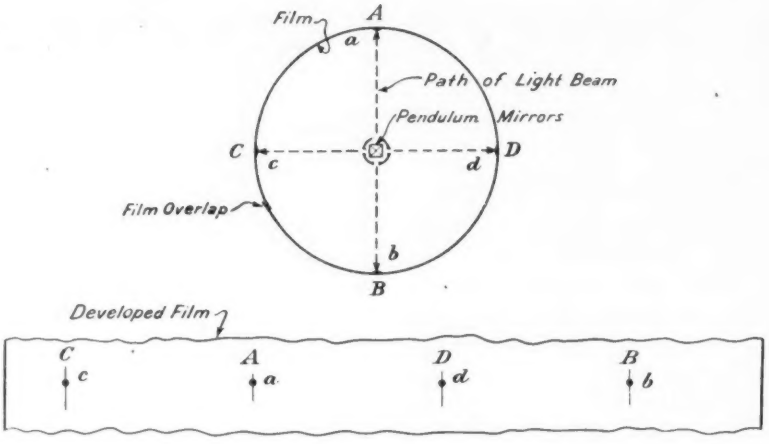
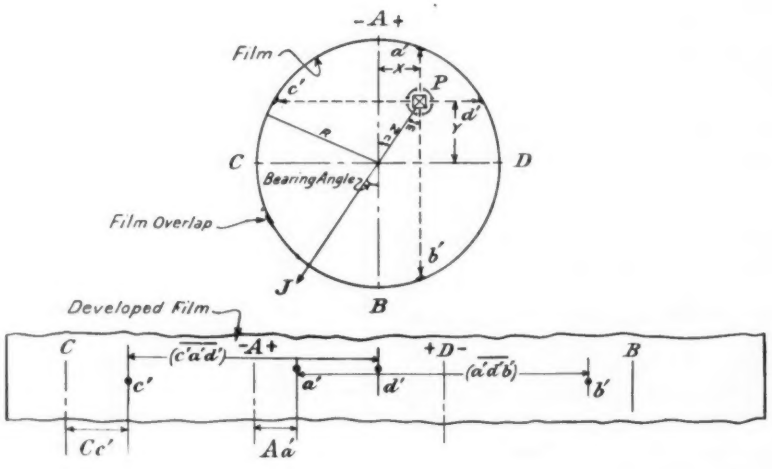



**Plate 2—Upper is Diagram No. 1; lower is Diagram No. 2**




1.) The pendulum carries a small electric light source near its center of suspension, light from which passes through a lens in the body of the pendulum and is then split by a pyramid of mirrors into four mutually perpendicular beams which radiate horizontally from the tip of the pendulum. These four beams impinge upon the sensitized cylindrical film which surrounds the pendulum and pendulum mounting. As a result, four images of the light filament are recorded on the film each time the electric circuit is energized, and from the positions of these images on the developed film the attitude of the instrument may be computed. The function of the clockwork mechanism is to close the pendulum circuit at regular intervals of about five minutes and to lower the film axially about one centimeter after each exposure.

### Recording Principle

Plate 1 shows the pendulum in section.

The pendulum is mounted in gimbals and is thus free to swing vertical while being prevented from rotating within the instrument.

Referring to Diagram No. 1, Plate 2, it will be seen that if the axis of the pendulum coincides with the axis of the instrument, the four images, a, b, c and d, recorded on the film will be equally spaced about its circumference; such is the record obtained when the instrument is held vertical. It will be seen that the positions of the images define the diameters AB and CD. If the instrument is tilted, so that the bottom of the instrument moves in the direction of J of Diagram No. 2, the tip of the pendulum will move into some position such as P, Diagram No. 2. The diameter AB may then be established by bisecting the circumferential distances $\overline{c'a'd'}$ and $\overline{d'b'c'}$. Similarly the diameter CD may be established by bisecting the circumferential distances $\overline{a'b'd'}$ and $\overline{b'c'a'}$.

The routine of computation is then as follows:

$$Aa' = \frac{\pi R - \overline{a'd'b'}}{2}$$

$$Cc' = \frac{\pi R - \overline{c'a'd'}}{2}$$

$$x = R \sin \frac{(Aa')}{R}$$

$$y = R \sin \frac{(Cc')}{R}$$

$$\text{Bearing angle} = \tan^{-1} \frac{x}{y}$$

$$z = \frac{x}{\sin (\text{Bearing Angle})}$$

$$\text{Inclination} = \sin^{-1} \frac{z}{\text{(Effective length of pendulum)}}$$

Referring to Diagram No. 2, the line a'b' is not actually parallel to the diameter AB and the diameter CD. For instance, the line c'd' is not quite parallel to the angle $m = \tan^{-1} \frac{\tan n}{\cos I}$, where I is the angle of inclination, from vertical. As a result, errors would be introduced, if the method of computation outlined were used where large inclinations from the vertical are recorded. Consequently, a chart is used in computing results when inclination angles in excess of 8 degrees are involved. Charts of this sort may either be computed, or determined empirically.

ADVERTISING PAGES REMOVED

# Pyrolysis and Destructive Hydrogenation Of Heavy Crude Oil Fractions

By V. N. Ipatyev*

## Part 2

THE second item of importance by which the performance of the process is defined is the pressure of hydrogen. Relating to the amount of this pressure it can be said, this being in complete agreement with available literature information, that it should not be below a certain minimum which averages 70 atmospheres when cold. This pressure increases gradually through the heating in accordance with Gay-Lussac's law.

Furthermore, it happened to produce quite different results depending whether the process of pyrogenetic decomposition in the presence of hydrogen was carried out in a stationary apparatus or when using agitation or stirring which assures the best possible contact of the dissociated material with hydrogen. In the first case the hydrogen reacts only on the surface layers of the product without penetrating into the product causing an ordinary cracking accompanied by coke formation, formation of unsaturated hydrocarbons, etc.

A comparison of the experiments of Orlov and Likhachev with those of Petrov and Ivanov may illustrate this. The first investigators conducted a short berginization of a primary coal tar in a rotating autoclave and obtained a gasoline yield of about 30 per cent, this gasoline contained only about 3 per cent of aromatic hydrocarbons and no coke was formed.

The second investigators subjected the same tar to an identical treatment but in a stationary bomb. The yield of gasoline amounted to only 20 per cent, it contained a high proportion of aromatics along with 40-50 per cent of coke.

When working with a stationary tubular bomb the yield of light products is even affected by the incline of the bomb. In a bomb placed in a vertical position, i. e., with a small contact surface for the hydrogen with the cracking material the yield of light products is always smaller than when placing the bomb in a horizontal position where a large layer is exposed to the action of hydrogen.

Assumption is made that the cracking is carried out in liquid phase, and actually the critical temperature of all compounds investigated is considerably higher than that used in our experiments. From the theoretical point of view the greatest development lies in the chemistry of the processes which result in the formation of low boiling compounds of a low molecular weight from compounds of high molecular weight.

Our attention was focused mainly on the influence of these conditions. A specific performance of the process depending on the chemical function of each given class of compounds can be observed and it appears to be of interest to investigate the Bergius process by individual groups of compounds.

**(1) Hydrocarbons.** The chemistry of the berginization of aliphatic hydrocarbons coincides to some extent very closely with their ordinary cracking and can be expressed schematically as the rupture of a long chain of carbon atoms into more or less long fragments. At the moment of the rupture each of the fragments formed carries free valencies which fix immediately hydrogen atoms and becomes transformed into saturated fatty hydrocarbons but of a less complicated nature than the original product:

$$CH_3 . CH_2 . CH_2 . CH_2 \vdots CH_2 . CH_2 . CH_2 . CH_3 \rightarrow$$
$$\rightarrow 2CH_3 . CH_2 . CH_2 . CH_2 - CH_3 . CH_2 . CH_2 - + H =$$
$$= CH_3 . CH_2 . CH_2 . CH_3$$

In the case of a sufficient excess of hydrogen pressure a formation of unsaturated compounds is excluded. The same is true for a possibility of ring formation of unsaturated into naphthene hydrocarbons.

Thus the cracking of pure paraffin under hydrogen pressure in an ideal case should lead to the formation of light paraffin gasolines, which was actually shown by Ipatyev and Orlov independent of Waterman and Perquin.[1]

The problem in connection with the berginization of aromatic compounds is by far more complicated. The benzene rings are under experimental conditions exceptionally stable and cannot be ruptured. In this case also they are not hydrogenated. While different side chains attached to the benzene ring are easily detached, which operation is accelerated with the increase of the length in the chain. Therefore, the benzene homologs produce benzene and paraffin hydrocarbons by de-alkylation. Di-phenyl paraffins such as di-phenyl methane, di-phenyl ethane, di-phenyl propane, etc., behave quite similarly. The final conversion product is always ben-

*Member Leningrad Academy of Science.

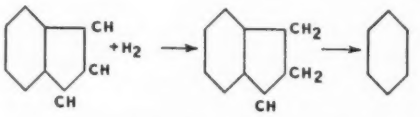
[1] J. Russ. Phys. Chem. Soc.: *61*, 1295 (1929); Ber.: *62*, 593 (1929); C. A.: 23, 3697 (1929).

zene, or its closest homologs, toluene, ethyl-benzene, etc.

At high temperatures, under the conditions of an ordinary pyrolysis in the absence of hydrogen, benzene hydrocarbons can split off single hydrogen atoms from their nucleus besides alkyl molecules. The free radicals formed, for a short period connect in pairs producing more complicated molecules. Known examples for such a reaction is the formation of di-phenyl from benzene, fluorene from diphenyl methane, phenanthrene from stilbene, di-naphthyl from naphthalene, etc.

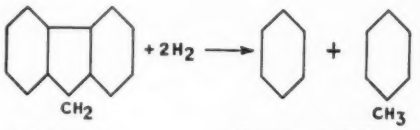
A different picture is obtained when reviewing aromatic hydrocarbons with condensed rings such as naphthalene, indene, fluorene, phenanthrene, chrysene, etc.

The behavior of these hydrocarbons during berginization was investigated with much detail by Orlov.[2] He found that all aromatic condensed systems can be hydrogenated also in the absence of the usual hydrogenation catalysts provided the temperature and the hydrogen pressure are sufficiently high. The hydrogenation is effected only with a part of the molecule and as a rule does not proceed beyond the tetra-hydro product.



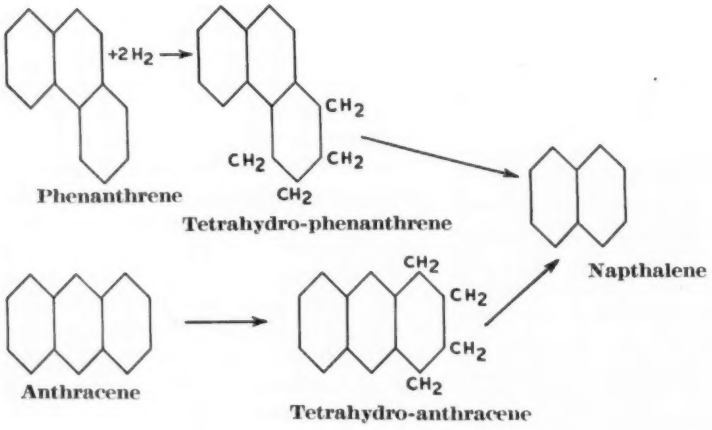

Indene Dihydroindene Benzene

Fluorene can also be hydrogenated in part, but the main reaction is a fairly smooth decomposition into benzene and toluene.




Fluorene Benzene Toluene

In this way condensed poly-




The formation of the hydride has a great influence on the stability of the molecule. The hydrogenated ring already is much less stable than the true aromatic ring, and is easily ruptured, initiating (in the example cited) the formation of naphthalene and its homologs, which are still further hydrogenated, to split off and to finally produce mono- or di-substituted benzenes. Indene which is closely related to naphthalene adds two hydrogen atoms only in the berginization, while the hydrindene so obtained is ruptured again according to the scheme:

aromatic hydrocarbons and their lower hydrides are berginized. The clarification of these regularities, explain in many respects processes connected with the utilization of by-products of the benzene and coke industry which will later lead to interesting conclusions regarding the liquefaction of coal.

Referring to hydrocarbons contained in crude oils our latest experiments carried out together with Likhachev as well as those carried out by Orlov and Belopolskii are of a much greater interest. Unfortunately when discussing the composition of crude oil and particularly that of naphthene base crude we are met by a complete lack of reliable information on the composition of its fractions boiling above 150 degrees C.

Except the old investigations of Markovnikov and Oglobin there are practically no basic investigations pertaining to the composition of higher crude oil fractions. Gurvich[3] considers the presence of poly-naphthenes as very probable, i. e., perhydrides of cyclic hydrocarbons with condensed rings as well as di-cyclo-hexyl paraffins. For this particular reason the investigations were directed toward reactions of individual representatives of this class of hydrocarbons.

It was found that di-cyclohexyl paraffins behave similar to di-penyl paraffins: Here cyclo-hexane and its substituents were obtained by berginization exactly in the same way as benzene and its homologs were obtained as final products from di-phenyl paraffins.

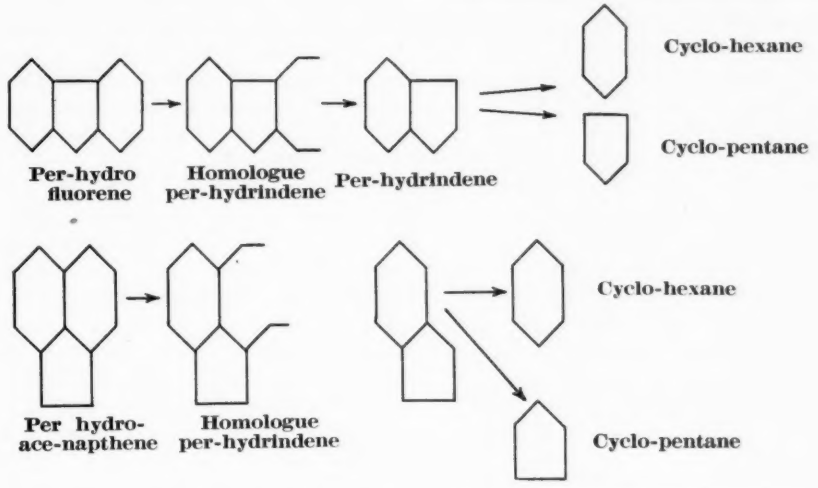
The process becomes more complicated with per-hydride hydrocarbons containing condensed rings. As was shown on examples with per-hydro-ace-naphthene and per-hydro-fluorene the molecules of the above hydrocarbons become continuously simplified during berginization, this process leading finally to the formation of light gasolines which are composed of a mixture of cyclo-pentane and cyclo-hexane homologs.

Products obtained through a smaller change of the original molecules still contain the condensed system of five and six

[2]J. Russ. Phys. Chem. Soc.: *60*, 1447 (1928); Ber.: *62*, 710 & 719 (1929); C. A.: *23*, 2174 & 3926 (1929).

[3]"Scientific Principles of the Petroleum Technology." 1926. London.

member rings and have therefore the constitution of the perhydrindene type.




These experiments of Orlov and Belopolskii, which assumed the presence in the oil of compounds of a structure similar to perhydrides of acenaphthene and fluorene, confirm the original assumption by the results obtained.

It is known that considerable quantities of indene and cyclopentadiene are obtained from the pyrolysis of crude oil. The attached schemes explain quite convincingly the possibility of these hydrocarbons being formed by dehydrogenation of the cracked products, which always occur in various heat treating processes. In reference to the case under investigation the formation of indene and cyclo-pentadiene was proved experimentally.

**(2) Other compounds.** The relation of other classes of compounds towards the action of high temperature and hydrogen under pressure will not be analyzed in detail in this article because of their secondary relation to crude oil.

From the oxygen containing type of compounds we investigated thoroughly the phenols which under berginization conditions are easily converted into the corresponding hydrocarbons. A. D. Petrov thoroughly investigated the ketones which produce hydrocarbons as a result of a direct hydrogenation or after a number of more or less complicated transformations.

He also investigated together with V. N. Ipatyev the destructive hydrogenation of naphthenic acids.

This hydrogenation is carried out in three directions and leads to the formation of gasoline and kerosine-like hydrocarbons, produces more simple naphthenic acids of lower molecular weight and finally initiates the formation of fatty acids of the type of acetic acid as a result of splitting off of side chains containing the carboyl group.

A great number of investigations of V. N. Ipatyev and Orlov, not published yet, show that the fatty acids readily produce saturated gasolines when subjected to destructive hydrogenation. Carbon dioxide is split off first and the saturated hydrocarbon so formed is then subjected to a further transformation according to the above schemes.

Of the other oxygen containing compounds, cholesterol deserves some attention. Zelinskii ascribes a very important role played by cholesterol in the processes of crude oil formation.[4]

N. Orlov[5] in the berginization of cholesterol found that it actually produces products of the character of crude oil. This is easily explained by the structure of cholesterol, which is built up according to the structure of a highly hydrogenated condensed system.

Other components of crude oil, those with a nitrogen base

[4]Ber.: *60*, 1793 (1927); C. A.: *22*, 89 (1928).

[5]Zhurnal Prikladnoi Khimii (Journ. Appl. Chem. Russia): *1*, 117 (1928); C. A.: *23*, 962 (1929).


*a good*
FENCE

*...marks your*
*boundaries*

CAN the public claim a right of way through your Tank Farm or Refinery Grounds? Your deed, the plot recorded on the map in the county surveyor's office does indicate that the property is yours . . . but a Wickwire Spencer Unclimable Chain Link Fence on the boundary lines makes it doubly so. It also prevents fire hazard, encroachment by neighboring plants or squatters or roadways through your lands based on the precedent of use and a hundred other annoyances. While the cost of a Wickwire Spencer Fence is comparatively low it's permanent. *Copper Bearing Steel* hot dipped galvanized does resist weather and use.

WICKWIRE SPENCER STEEL CO.
41 East 42nd Street, New York City
*Buffalo Sales Office*: 1 River Road
Worcester Chicago Cleveland Philadelphia Tulsa
*Pacific Coast Headquarters*: San Francisco
*Branches and Warehouses*: Los Angeles, Portland, Seattle
Distributors and Erectors in all principal cities

*This triangular name plate appears on all genuine Wickwire Spencer Fences.*

WICKWIRE SPENCER
*Chain* LINK *fence*

Please send me without obligation on my part your latest fence catalog.
Name.....
Address.....
City and State.....

deserve to be mentioned also. As was shown by our experiments under berginization conditions, these bases split off their nitrogen in the form of ammonia and are transformed into the corresponding hydrocarbons.

Of a much greater interest is the behavior of sulfur compounds. However, direct experiments in this direction have yet not been carried out and the only assumption which can be made based on the berginization of tars from hard coals, is that in berginization products the amount of sulfur is very insignificant as compared with its contents in the original material. It is very probable, that the sulfur is held by the metallic walls of the container or is consumed by the metal oxides which are added in some experiments for catalytic purposes to lower the temperature of dissociation.

Lack of space does not permit even to mention the numerous experiments which were carried out in our laboratory for the purpose of determining the chemistry of the destructive hydrogenation, applied to individual compounds as well as to complicated technical mixtures.

In spite of the variety of material investigated, the process of the destructive hydrogenation under pressure always leads to the formation of light hydrocarbons. In some cases depending on the chemical structure of the original material aromatic hydrocarbons prevail, as for example when berginizing solvent naphtha, heavy tar from hard coal, pitch, etc.

In other cases light paraffin hydrocarbons are only obtained (from vegetable and animal fats).[6] Finally mixtures containing varying amounts of light aromatic, paraffinic and naphthenic hydrocarbons are frequently obtained, for example when berginizing primary tar and wood tar.[7]

Here attention should be drawn to the following: When comparing the results obtained in various new investigations on cracking, particularly in the liquid phase and under pressure, with the results obtained in the berginization, certain close relationship between both methods is quite apparent. From the material cited it is quite easy to conclude that cracking precedes the berginization in most cases.

This berginization becomes apparent by the fact that the dissociating molecules are protected from polymerization, condensation and in part from isomerization by the formation of free valencies at the moment of dissociation, whereby the hydrogen is fixed converting the compounds from unsaturated into the more stable saturated class.[8]

The experimental material dealt with above as well as the theories developed which were the basis of our experiments made it possible for us to start with considerable confidence the investigation of the destructive hydrogenation of paraffin base fuel oil under pressure.

These experiments are in the first stages, but nevertheless, even in this unfinished condition they appear to have a certain practical value.

The paraffin base fuel oil was selected for our experiments quite intentionally, having the following considerations: The conversion of Grozny paraffin base fuel oil into a liquid fuel is of great practical interest. This fuel oil is a very troublesome by-product of the refining of Grozny crude oil. In 1928/29 when 3,000,000 metric tons of crude oil were treated in Grozny 1,300,000 metric tons of this by-product were produced.

Its high congealing temperature causes the well known difficulties in storage and transportation particularly during the cold months of the year. Considerable difficulties are also experienced with the technical utilization of this fuel oil, because it is of a semi-solid consistency which requires heating of storage tanks and pipelines when transferring it to the treating plants. According to the fitting statement of Dr. A. N. Sachanen:[9] "The numerous experiments to lower the congealing point of Grozny paraffin base fuel oil by a great variety of methods are quite natural. It should be pointed out quite definitely that among the many methods suggested two only are of a technical importance, cracking and paraffin manufacture."

He says further that in accordance with other calculations the paraffin manufacture is at the present time confronted by many insurmountable obstacles to be developed on a large scale and cracking is therefore the only general method to solve this difficult problem of the easily solidifying fuel oils from Grozny. This is important for the solution of the high congealing point question as well as for the manufacture of gasoline.

Dr. Sachanen's thorough investigations in this direction lead to the following general conclusion. A delicate and short cracking under the pressure of vapors developed during the process produces a fuel oil of a lower congealing temperature. When working towards a gasoline production more energetic means are required which in the best case produce up to 55 per cent (by weight) of a gasoline boiling below 200 degrees C., gases and coke.

Under intermediate conditions cracked kerosine can be produced besides gasoline whereby the total cracked distillate produced amounts to about the same figure as given for gasoline alone.

Referring now to results obtained in our experiments carried out together with Orlov and Belopolskii, the following can be said. Experiments with cracking Grozny paraffin base fuel oil type "G" were carried out in a rotating autoclave to assure a uniform contact of the fuel oil with hydrogen. It was determined by preliminary experiments that the process is too slow below 440°C., while at this or a slightly higher temperature it required one to one and one half hours.

The initial hydrogen pressure applied was about 100 atmospheres and the maximum pressure developed during the process amounted to 265 atmos-

[6]Not yet published observations.

[7]Ipatyev and Petrov. Ber.: *62*, 401 (1929); C. A.: *23*, 3567 (1929).

[8]V. N. Ipatyev and Orlov. Ber.: *60*, 1963 (1927); C. A.: *22*, 396 (1928).

[9]Sachanen and Tilicheyv. "Cracking in the Liquid Phase." First Russian Edition, Moscow 1928, p.71.

pheres. After the apparatus was cooled down its contents were distilled and yielded up to 70 per cent of a distillate boiling below 300°C., while the average loss for gases amounted to 10-15 per cent and the residue from the distillation was the unchanged fuel oil which when recycled under the above conditions produced again the same distillate. A coke separation was never observed.

The distillate was divided into two fractions by distillation: One fraction boiling below 150°C. and one fraction boiling at 150°-300°C. The first fraction was composed of a high grade gasoline of a specific gravity of $d_0^{25} = 0.6882$ and the second fraction was a kerosine fraction of a specific gravity $d_0^{25} = 0.8197$.

The yield of gasoline amounted as a rule to 35-40 per cent of the original product, while the remaining 35-30 per cent belonged to the kerosine fraction. The gasoline so obtained was of a saturated nature, while the kerosine on being treated with sulfuric acid containing 15 per cent $SO_3$ lost 12½ per cent.

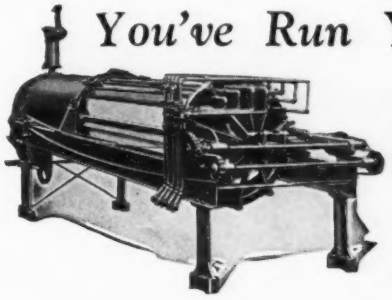
The kerosine darkens on storage fairly rapidly; this darkening was eliminated easily by treating the crude kerosine with a small amount of silica gel. A kerosine is thus obtained which is quite transparent and which has a slightly yellowish tint with a trace of bluish fluorescence.

The amount of hydrogen used in this process is very small, amounting to 1½-2½ per cent on the weight of fuel oil charged. The gases contain, besides an excess of hydrogen, only saturated hydrocarbons. Series of partially completed experiments permits us to assume that gasoline is formed first and precedes the formation of the heavier kerosine fraction. By changing the duration of the experiment, its temperature and pressure we expect to be able to raise the yield of gasoline still more above that of kerosine.

We are of the opinion that the realization of the technical destructive hydrogenation of fuel under pressure does not bear any insurmountable ob-

(*Continued on Page* 99)


*You've Run Your Crude . . . .*



now make a profit from the *residuum*

CONVERTING a pressure-still residuum to fuel-oil in a Kelley Pressure Filter is not in the "experimental" stage. More than a score of successful installations testify to that fact.

The cost is low, only a few cents a barrel; the product can be used in your own plant, or sold. It's a worthwhile investment. Call for details.

OLIVER UNITED FILTERS INC.

SAN FRANCISCO, Fed. Reserve Bank Bldg. NEW YORK, 33 West 42nd St.
CHICAGO, 565 Washington Blvd. LONDON, W. C. 1, 150 Southampton Row
PARIS, T. L. Gen ter, Concessionaire, 63 Ave. des Champs Elysees

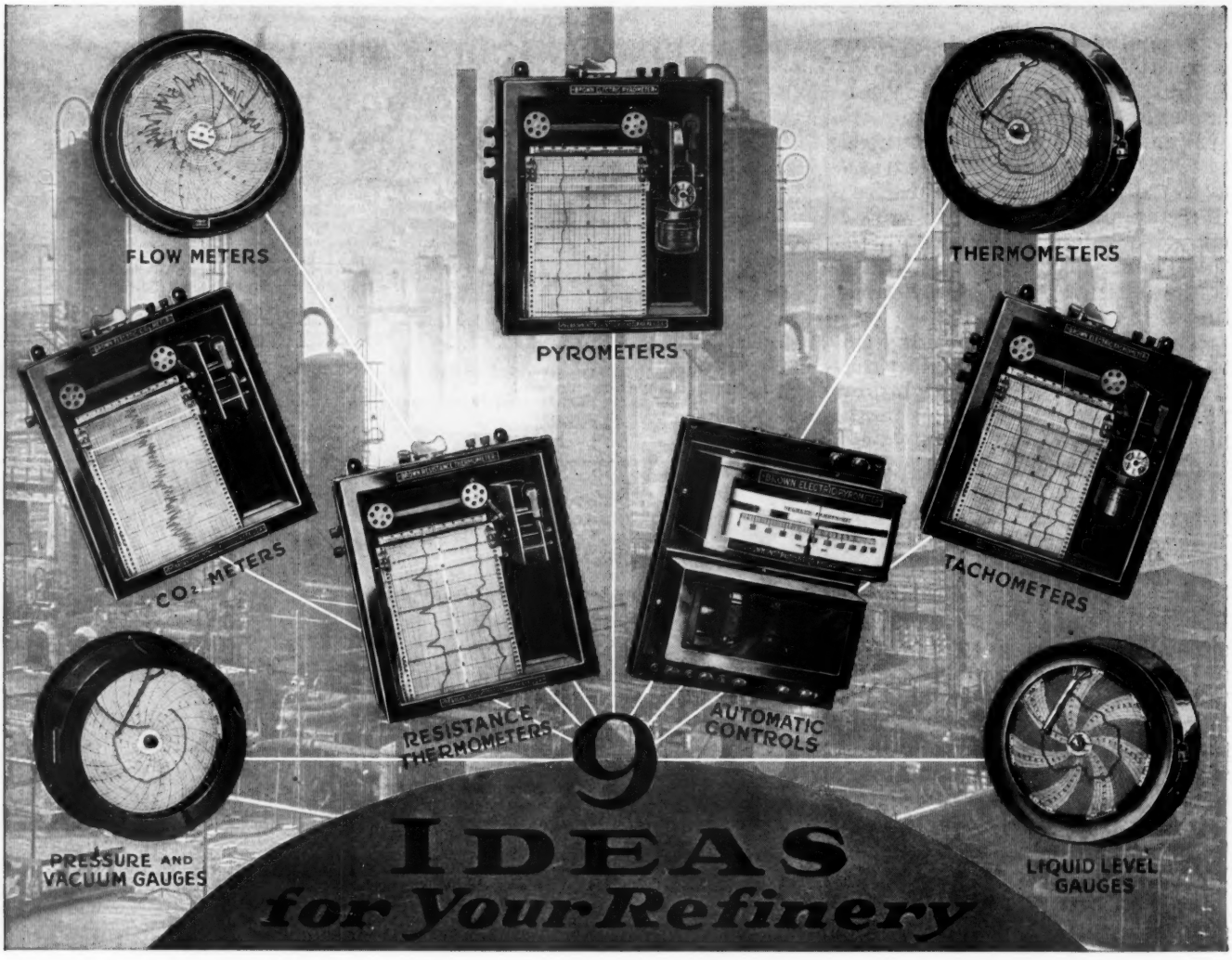
Hybnickel

HEAT AND ACID RESISTING CASTINGS

Several hundred tons of Hybnickel are now in use in oil refinery stills and superheaters.

*One of Our Main Products Is—*
Heat-resisting supports for Oil Stills.

HYBNICKEL ALLOYS COMPANY
*Successors to Victor Hybinette*
c/o The Pusey and Jones Corporation
Wilmington, Delaware




FLOW METERS

For indicating, recording and controlling the flow of oil, gasoline, gas, steam, water, air and other liquids, gases or vapors encountered in the production, refining and transportation of petroleum and petroleum products.

AUTOMATIC CONTROLS

For automatically controlling, within desired limits, temperatures, pressure, flows, tower levels, speeds and % $CO_2$.

THERMOMETERS

For indicating, recording and controlling temperatures ranging up to 800° F. where the instruments may be located at relatively short distances from the points where the temperatures are to be taken.

$CO_2$ METERS

For indicating, recording and controlling % $CO_2$ in still and boiler furnace to check and insure proper firing efficiency.

PYROMETERS

For indicating, recording and controlling temperatures in stills, towers, furnaces, flues, lines, etc., in and around the oil refinery.

RESISTANCE THERMOMETERS

For indicating, recording and controlling low temperatures such as are encountered in de-waxing plants.

TACHOMETERS

For indicating, recording and controlling speeds of pumps, fans and other machines in the refinery.

PRESSURE AND VACUUM GAUGES

For indicating, recording and controlling pressures and vacuums in stills, towers, steam and power plants, etc., in and around the oil refinery.

LIQUID LEVEL GAUGES

For indicating, recording and controlling the level of petroleum and petroleum liquid products in tanks, towers, etc., at a distance.

*Write for Data*

THE BROWN INSTRUMENT COMPANY
4508 Wayne Ave., Philadelphia, Pa.
*Branches in 22 principal cities*

# Brown Instruments

*"to measure is to economize"*

# Does Natural Draft Pay?

By J. R. Darnell*

IN THE construction of oil still units a boiler plant, or in fact almost any kind of plant where fuel is burned, a decision must be reached as to whether natural or mechanical draft will be used.

Natural draft, contrary to the belief of many engineers, is not necessarily economical, merely because the initial investment in fans and subsequent power charges are eliminated. If air heaters or economizers are to be used, an economic study may show that a substantial saving may be effected with induced draft. Even if no air heaters or economizers are contemplated, unless both load and use factors are small, natural draft will not pay.

Not so many years ago, 250 per cent to 300 per cent of rating was considered the very maximum for boiler operation, and even in cases where the units were actually designed to obtain this load, they were seldom, if ever, operated above 200 per cent rating. Usually in plants where, for example, boilers of 500 horsepower rated capacity were installed, it required four of them to develop 3,000 to 3,500 boiler horsepower per hour with natural draft. A stack of 9 to 10 feet in diameter by 150 to 160 feet in height was required.

Whether of radial brick, concrete or steel, such a stack was far more expensive than a small high efficiency induced draft fan, together with a short, self-supporting stub stack. Four or five induced draft fans similar to the one in Fig. 1 could have been purchased for the price of one large stack.

Furthermore, the induced draft fan would have permitted the installation of two 1000 horsepower boilers, either of which could be operated at 300 to 350 per cent rating with the other standing by as a spare. Thus the investment charges on the boiler units would have been materially reduced. Maintenance charges also would have been materially reduced from four operating units to one.

Now, supposing at some future time conditions arise which make the use of preheated air desirable. The original unit, designed only for the maximum boiler load at the time of installation probably has little or no excess draft capacity. Even supposing that it is good for an additional ¼-inch resistance, an air heater would have to be designed with gas and air passages of large areas, providing low velocities in order to keep the gas resistance down to the value permitted by the stack. At low velocity, the rate of heat transfer would be low and it would require a much larger amount of heating surface to do the same work as compared to induced draft.

It should be remembered also that induced draft provides greater flexibility of operation and insures independence of atmospheric conditions. When starting up with a cold setting, many an operator has bemoaned the poor draft provided by the stack. Quite often under such conditions they have had recourse to the rather crude and often laborious expedient of building a wood fire in the base of the stack in order to get a fire started in the furnace.

Often when the wind is blowing at high velocity, the barometric pressure is low and the wind seems to "blow right down the stack," firemen despair of maintaining power operation.

Central stations and industrial plants, scarcely without exception, operate with induced draft if air heaters or economizers are installed. The majority of oil refineries, however, seem to favor natural draft although economic studies generally will show that if it is desired to have final air temperatures of 400 degrees and above, with initial gas temperature of 900 degrees to 1100 degrees, induced draft will show appreciable saving.

The nearer the final air temperature approaches the initial

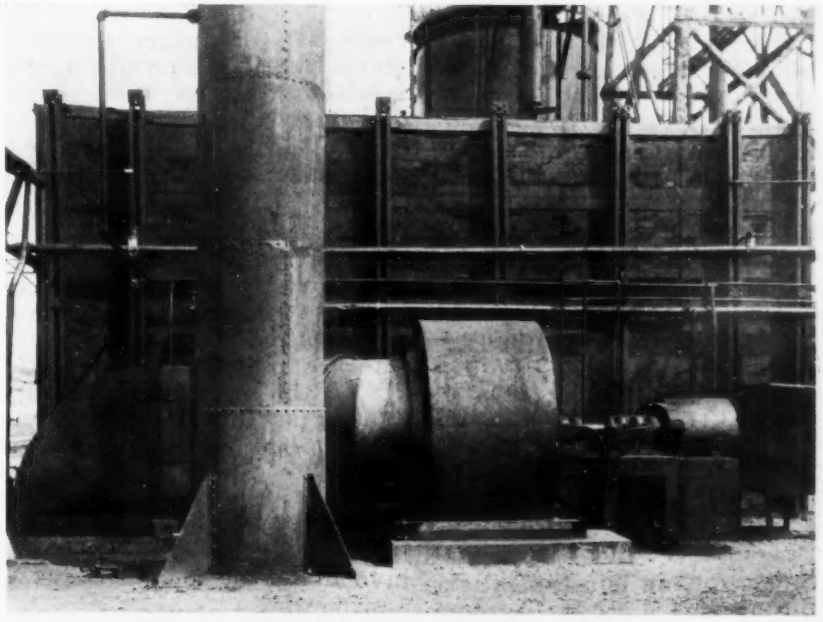


Fig. 1—Induced draft fans on tube cracking still

*B. F. Sturtevant Co., Chicago, Ill.

## Table No. 1

### Air Heater and Fan Costs

| | A | B | C | D | E |
|---|---|---|---|---|---|
| Sq. ft. heating surface | 10400 | 7150 | 5475 | 4900 | 4040 |
| Air resistance in. water | 0.60 | 0.8 | 1.45 | 1.95 | 3.25 |
| Gas resistance in. water | 0.25 | 0.40 | 0.60 | 0.80 | 1.45 |
| Forced Draft Horsepower | 9.9 | 10.9 | 14.9 | 18.0 | 27.0 |
| Induced Draft Horsepower | Nat. Draft. | 10.9 | 11.8 | 13.3 | 20.2 |
| Price of heater, dollars | 8100 | 6100 | 5000 | 4600 | 4000 |
| Price of F.D. fan, dollars | 500 | 500 | 666 | 619 | 855 |
| Price of F.D. fan motor, dollars | 275 | 320 | 365 | 284 | 310 |
| Price of I. D. fan, dollars | none req. | 953 | 951 | 947 | 881 |
| Price of I. D. fan motor, dollars | none req. | 320 | 320 | 320 | 316 |
| Total investment, dollars | 8875 | 8193 | 7302 | 6770 | 6362 |
| Interest at 6% per year, dollars | 533 | 492 | 438 | 406 | 382 |
| Yearly power charge for forced draft | 436 | 481 | 660 | 792 | 1190 |
| Yearly power charge for induced d'ft | ..... | 481 | 520 | 586 | 890 |
| Total Cost | 9844 | 9647 | 8920 | 8554 | 8824 |

Power charges are based on 7860 hr. yearly operation at ¾c kw. hour.

gas temperature, the better the argument for induced draft. For example, if the initial gas temperature was 1200 degrees and the final air temperature was to be 300 degrees, the saving, with induced draft, would not be so great as where the initial gas temperature is 1000 degrees and the final air temperature 500 degrees. However, the economics of any combination of initial and final temperatures can be easily worked out to decide whether or not induced draft will pay for itself.

But it is not sufficient to merely establish the fact that induced draft is more economical than natural draft. Studies should be made to decide just how far it is profitable to proceed in the selection of air heaters and fans for induced draft operation.

For example, although it may be shown that an air heater of approximately 7100 square feet heating surface, with a resistance of 0.4 inches for the flue gas, operating with induced draft, is more economical than a heater of 10,000 square feet with a natural draft resistance for the flue gas of 0.25 inch nevertheless, the study must be extended to show how high a resistance may be maintained (with resultant reduction in heating surface) until the increased cost of the forced and induced draft fans, plus the increased power charges, exceeds the decreased cost of the smaller size of heater.

The following is a typical example of such a study: Assume that with an inlet gas temperature of 630 degrees and inlet air temperature of 60 degrees, an air heater of 10,400 square feet is required to give a final air temperature of 320 degrees and final gas temperature of 350 degrees. A forced draft fan will be provided but only natural draft will be used for the flue gas.

If the resistance is increased and induced draft provided for the flue gas, the same temperature performance can be obtained with less and less heating surface as the resistance is increased. The performance of five different sizes of heaters is shown in Table I.

Although the cost of heating surface is reduced as the resistence is increased, larger fans with greater power consumption are required. Eventually a point is reached where the total cost reaches a minimum and then starts to rise. Referring to Fig. 2, the curve shows values of total cost for the various selections in Table I plotted against heating surface.

The heating surface corresponding to the point where the total cost reaches its minimum and starts to rise, indicates the most economical size of air heater to purchase. According to this economic study selection "D" with 4900 square feet of heating surface, operating with both forced and induced draft fans, shows a saving of $1290 over the natural draft air heater. This is a saving of approximately 19 per cent on the initial investment in the heater, fans and motors.

In another study where the gas and air weights were about the same as above, although temperature conditions differed considerably, the induced draft air heater again offered substantial savings. With an initial gas temperature of 900 degrees and initial air temperature of 65 degrees, a final gas temperature of 500 degrees was required. This gave a final air temperature of about 500 degrees. To maintain the specified maximum resistance of 0.20 inch, 13,620 square feet of surface were required. The draft loss for the air was 0.40 inch. The total cost including interest on the investment, plus the power charges for the forced draft fan was $10,073.

For the same temperature performance using induced draft, only 4800 square feet were required for the most economical size of heater. The draft loss for the gas was 0.65 inch and for the air 1.45 inch. In this case the total cost, including interest on the investment, plus power charges for both induced and forced draft fans, was $7828. The saving of $2245 was equivalent to almost 35 per cent of the initial investment in the heater, fans and motors.

The foregoing examples are not isolated cases, but are typical of the economical advantages of induced over natural draft.

When selecting equipment, purchasers should insist that each bidder submit an economic study similar to those just described. These calculations will assist not only in determining the most economical size of heater for any individual bid, but will clearly indicate the best value in all the bids.

For example, bidder "A" with prices as given in Table I, might show that his most economical selection would be a heater of 4900 square feet, while bidder "B" might offer a heater of 5200 square feet as his most economical selection. His price for this size of heater might be less than bidder "A's" price for 4900 square feet. Going further, bidder "B" might even show a lower price for his fans in this selection. But "B's" fans might be considerably less efficient than those offered by "A" and consequently the power con-

# Here's the 1931 idea:

Build all refinery operations around your cracking plant

The cracking plant is today the heart of the refinery Crude stills are incidental

Skimming plants are out of date Out of date is out of pocket

Cracked gasoline is what the market demands

Dubbs cracking is the sensible way and the sure way to profit

Universal Oil Products Co.
Chicago, Illinois

Dubbs Cracking Process
Owner and Licensor

sumption might be materially greater.

Unless the power required for the fans is capitalized and the yearly charges added to the investment charges, the purchaser quite erroneously may be led to believe that bidder "B's" equipment is a better bargain than "A's." Higher power charges might easily overbalance the difference in the cost of the two bids.

### Natural Vs. Forced Draft

Occasionally we find installations of boilers equipped with natural draft chain-grate stokers where it is desired to increase the load. Sometimes operators entertain the idea of increasing the output by installing an induced draft fan. Cases are rare where such an expedient has beneficial results. More often than not, when operating the stoker at maximum speed and with a maximum depth of fuel bed, without running an excessive amount of fuel in the ash pit, there is still an excessive amount of draft in the furnace.

This clearly indicates that an induced draft fan would be of no value under such conditions.

Apparently the stack will carry away all the flue gas that the stoker will produce with some capacity to spare. An induced draft fan would be superfluous.

The fuel burning capacity, or combustion rate of natural draft stokers is limited. Regardless of whether natural draft from a stack or an induced draft fan is used to draw the necessary air for combustion through the fuel bed, only a limited amount will pass through.

Increasing the draft in the furnace will only tend to draw more excess air through leaks in the setting or around the sides and ends of the stoker and will carry more heat away from the furnace into the stack. Neither increasing the stack height nor installing an induced draft fan will appreciably increase the output.

The problem may be solved by either of two methods: (1) installing greater natural draft grate area or, (2), providing forced draft, or possibly a combination of the two.

A dutch oven might be provided as an extension to the front of the furnace and a longer natural draft stoker installed or the original stoker might be rebuilt with a forced draft section provided under the ignition arch. But rebuilding a natural draft chain grate stoker is only a make-shift at best and it might therefore, prove more economical in the end, to install some recognized design of forced draft stoker, either chain grate or under feed.

With the introduction of forced draft, it is quite possible that the fuel burning capacity of the furnace could be increased to a point where the resistance of the products of combustion through the boiler and duct work might exceed the natural draft produced by the stack. It would then be necessary, of course, to install an induced draft fan as well as one for forced draft. Here again is a typical example of the limitations imposed by natural draft. Except for isolated cases, the economy of mechanical draft can hardly be questioned.

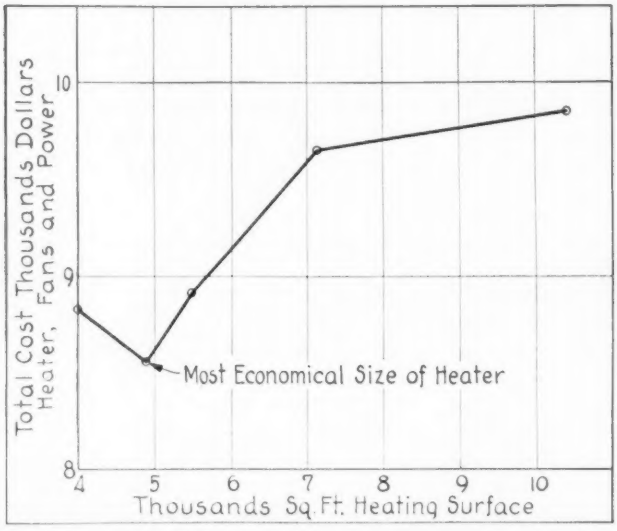



**Fig. 2—Costs of heater, fans and power for various heating surface capacities**

It is surprising that a number of engineers who have always operated with natural draft, still maintain that air heaters cannot show heat transfer rates much above 2.0 B.t.u. per square foot per degree mean temperature difference, regardless of the entering gas temperature or the mass velocity. Yet heat transfer rates of 3.5 to 4.0 B.t.u for mean temperature of 200 or 250 degrees are common in central station practice, using induced draft.

Transfer rates even higher than this have been reported by various authorities. In the Cochrane Corp. Handbook—"Finding and Stopping Waste in Modern Boiler Rooms," page 558, the late Alfred Cotton reports transfer rates for a 3-inch tubular heater as follows:

| Mass Velocity | B.t.u. heat transfer for mean temperature difference of 100° | 200° | 300° |
|---|---|---|---|
| 1000 | 1.6 | 1.7 | 1.8 |
| 2000 | 1.9 | 2.3 | 2.7 |
| 3000 | 2.2 | 2.9 | 3.7 |
| 4000 | 2.5 | 3.5 | 4.6 |

In addition to this preponderance of evidence in support of high rates of heat transfer which are possible in air heater practise, it should be remembered, in view of the fact that the "thermal head" or mean temperature has a decided influence on the rate of heat transfer, that most of the data given have been for boiler practise with lower temperature conditions than found in oil refineries. Here the flue gas generally enters the air heater at 1000 to 1100 degrees and the air at 70 degrees, while the gas leaves at 650 to 700 degrees and the air at 400 to 500 degrees.

These conditions give a mean temperature difference of about 600 degrees, which is far in excess of anything found in boiler practise. On the basis of the tests reported by Alfred Cotton, if the mean temperature difference is increased from 300 degrees to 600 degrees the transfer rate at 4000 pounds mass velocity should be in excess of 7 B.t.u. Even at mass velocities of 1000 to 1500 pounds as usually found with natural draft, the heat transfer rate should be 2¼ to 3¼ B.t.u.

With such rates of heat transfer possible at high temperatures, there should be even greater reason for the use of induced draft, particularly on oil stills where such temperatures are found.

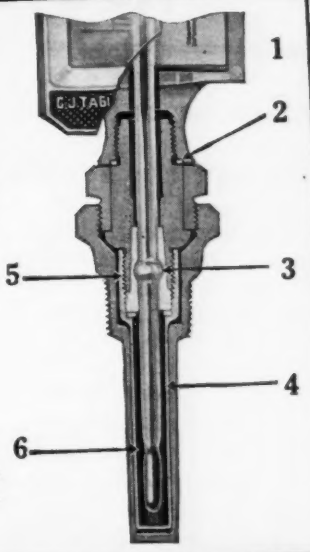
# TAG Industrial Thermometers

## with NEW Snap Case-Front and other improvements

SNAP . . . the case-front of the NEW TAG Industrial Thermometer is off. No screws to bother with when removing the glass to clean it. Snap . . . it's on again . . . securely. The front can't fall as it is held firmly by a tongue and groove at the top.

***Superior Structural Features***

1. TAG-Hespe glass—easy to read.
2. Asbestos packing, uniformly compressed around enlargement on glass stem prevents movement of tube with reference to scale.
3. Left handed thread on bulb chamber prevents loosening if case is turned in removing thermometer.
4. Thin Monel bulb chamber allows quick conductivity, yet is rugged and non-corrosive.
5. Connecting piece locked to case by specially designed split spring washer.
6. Mercury filling in bulb chamber completely surrounding bulb insures split-second transmission of heat.




Buetin No. 1033-56—just off the press—describes and illustrates 1 detail the features of this NEW TAG Industrial Thermometer.Send for it:

# C. J. TAGLIABUE MFG. CO.

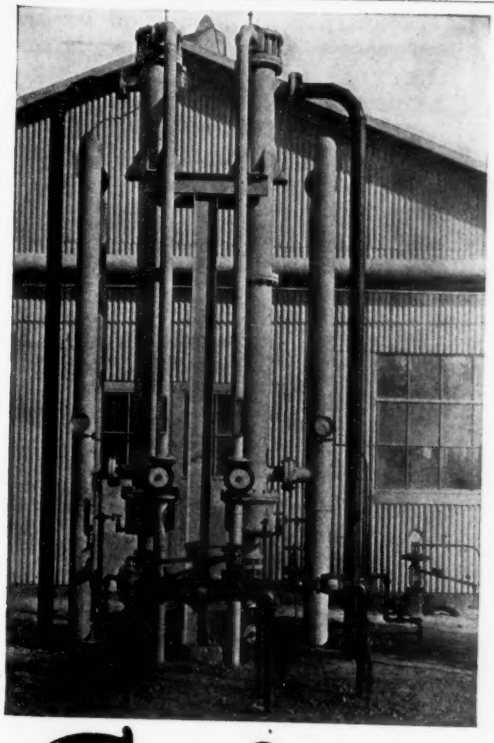
PARK AND NOSTRAND AVES., BROOKLYN, N. Y.

*Instruments for* Indicating, Recording and Controlling

BRANCH OFFICES AND *FACTORIES

BIRMINGHAM, ALA. BOSTON, MASS. CHICAGO, ILL. *CLEVELAND, OHIO PITTSBURG, PA.
PORTLAND, ORE. *SAN FRANCISCO, CALIF. *SHREVEPORT, LA.
ST. LOUIS, MO TORONTO, ONT., CAN.

C. J. TAGLIABUE Mfg. Co. BROOKLYN



# For efficient and effective heat transfer operations

G-R Heat Transfer Apparatus often effects remarkable improvements in heat transfer processes. In some instances G-R Units have accomplished quicker and more complete condensation and cooling than previous equipment with several times as much surface. In many other installations G-R Units are providing thorough satisfaction when handling corrosive or dirty fluids which quickly caused failure of other types of heat transfer apparatus.

Investigate G-R Equipment for your own condensing, cooling or heat transfer processes. Write for Bulletin describing the many types in detail and explaining their special advantages and applications.

**The Griscom-Russell Company**
285 Madison Ave., New York
*Branches in principal cities*

# Griscom-Russell

## Heat Transfer Apparatus

# New Equipment

## New Device for Measuring Viscosities Quickly

A NEW device for measuring viscosities of lubricating and other heavy oils has been brought out by the Visco-Meter Corp. of Buffalo, N. Y. It is said to do the work more quickly than the conventional type.

Two forms of this instrument known as the Visco-Meter have been produced. One is installed on the crank case of the automotive engine, and the indicating dial placed on the instrument board. The industrial type in principle more nearly typifies the Saybolt machine for determining viscosity, and is designed for use in viscosity determination where greater speed is essential.

The Visco-Meter is connected into the oil pressure line where working pressures exceed eight pounds per square inch. An automatic valve reduces the pressure of a small portion of the crank case oil to five pounds in the oil chamber, from which the oil flows through the capillary into a divided chamber beyond. One part of this chamber is connected with a calibrated capillary resistance tube, the other actuates the indicator gauge on the instrument board. The varying resistances of oils or differing viscosities passing through the resistance tube vary the reading of the dial.

The industrial type is designed for the purpose of rapidly determining Saybolt, or approximate Saybolt, viscosities over a considerable range of temperatures. Oil is forced through a calibrated capillary by a motor-driven gear pump, a relief valve regulating the pressure on the capillary inlet. The indicator gauge is calibrated with the capillary at the predetermined pressure, and is connected so that flow resistance in the capillary is indicated on the gauge in terms of Saybolt viscosities.

The manufacturers state that the weight of this apparatus is about 15 pounds. It is portable, requires no stop watch and no additional apparatus for operation. Determinations may be made of viscosities through a range of temperatures from 300 F. to room temperature within a few minutes, it is stated.

* * *

**The Watson-Stillman Co., Aldene, N. J.,** manufacturer of hydraulic machinery, has developed a new device for reconditioning steel drums. It dedents, cleans and tests in one operation, the company says.

An alkaline solution from the sump is pumped into the drum. The pump then builds up hydraulic pressure to dedent and test the drum. The pump is by-passed by the three-way valve, hose is disconnected, clamping heads are released and the rocker saddle is tripped by the foot pedal allowing the drum to roll on to the rack to drain to sump.

* * *

**The Brown Instrument Co. of** Philadelphia, Pa., has recently announced its new Brown Flame Analyser, an apparatus for controlling the quality, heat value, and burning characteristics of gas for fuel purposes.

The apparatus consists of a special burner in a shield, with a number of thermocouples so situated as to be variously affected by the flame. It can be made to record and to control the quality of the gas mixture by the inclusion of an automatic control recorder.

According to the announcement the apparatus may be used, and in many cases has already been used with good results to indicate the degree of debutanization in stabilizing light naphthas, and to control the gas quality from liquid gas or "butane" plants now being installed in smaller communities, operating the latter automatically. It has also been used to show the efficiency of charcoal absorption natural gasoline plants, recording the quality of cracking still fixed gases, and for controlling and recording the quality of mixtures of cracking still and refinery gases with combustible or inert gas to furnish a controlled mixture for fuel purposes.

* * *

**The Wilgus Mfg. Co., of Los** Angeles and San Francisco, Calif., has just issued catalog No. 101, covering its entire line of gas, pressure and other types of regulators.

This line includes pressure and reducing regulators, direct and pilot-actuated, steam reducers, back pressure regulators, gas fuel regulators, pump and compressor governors, motor valves, vacuum and differential regulators, and a line of liquid level controllers.

The book also contains specifications, blue prints in detail of the different types of controls and regulators, installation diagrams and list prices for these products.

* * *

**The Niles Steel Products Co.,** Niles, O., announces the addition to its staff of J. E. Killian, formerly sales manager of the National Steel Barrel Co.

* * *

**A new damping U-tube has** recently been perfected by the Foxboro Co., Foxboro, Mass., for use on all its new style flow meters and flow controllers. The tube can be adjusted for proper damping while the instrument is in operation to make the adjustment it is unnecessary to shut off pressure or to disassemble the instrument.

The tube is not furnished as standard equipment but may be ordered special for installing on all Foxboro instruments except types T, C, A, and B.

* * *

**Foster Wheeler Corp., 165** Broadway, New York manufacturer of shells and towers for refining and gasoline recovery plants, has entered boiler manufacturing through acquisition recently of the D. Connelly Boiler Co., Cleveland, O.

This acquisition will enable the company to meet all requirements for heater and evaporator shells, fractionating and stabilizer towers. In addition to its steam generators, it will make all types of boilers in the entire range of sizes and pressures.

# Visiting Around the Refineries

By Arch L. Foster

THE new natural gasoline specifications place a premium on the better operated plants. Careful checking of column efficiencies, accurate oil rate determination, and a close check on the operation of the distillation units is being rewarded by reductions in the overhead loss, and a more accurate cutting to specifications according to gasoline plant superintendents in the field.

With the added complication of oil proration, which disrupts the gas supply to the plants, the plant superintendents in the field say they find it well worth while to check carefully the operating efficiencies of the units in their charge.

For the manufacturer, the problem offered by the new specifications is to locate, by rectification, a gasoline in the highest volatile grade with the lowest possible vapor pressure. In general it has been found that for each four pounds reduction in vapor pressure—the differential on which the new specifications break—there is a difference of about 11 per cent butane.

Many stabilizers, particularly those that have been in service for some time, are designed to operate at some particular throughput capacity, and at that capacity to remove the propane contained in the charge to the stabilizer. It frequently happens that when attempts are made to go deeply into the product with an overhead cut the difficulty of maintaining a balance and operating the stabilizers becomes greater.

It becomes more important, say plant operators, that as the top cut goes down into the butanes that condenser temperatures and pressure be fixed accurately. Reflux rates should also be maintained as high as possible, in the light of field experience.

A check up by one superintendent on several plants in his district disclosed the fact that the air leak on control valves was improperly adjusted. With many plants running somewhat below capacity many control valves are found to be too large for the job in hand. In some cases it has been found profitable to replace controls designed to handle larger volumes than are now passing through the units. Proper adjustment, will, it has been found, remedy many troubles which have considered the fault of oversized controls.

Under present conditions, temperature "hunting" is apt to give trouble, says some plant superintendents. Much of the hunt at temperature controllers is caused by the actuation of the pressure controller itself. It is frequently found that the main relief valves are adjusted too wide open. This results in a dumping of the overhead product, and causes the temperature hunt at both the condenser and the feed box, and the feed plate. Proper adjustment of these valves has been found to do much towards smoothing out the operating of the columns.—J. Power.

**B. W. Winters, Construction Superintendent, who built the new plant of the Pure Oil Co. at Toledo. Cold weather construction work appears to have no terrors for him; the entire plant was completed and running in five months elapsed time**

* * *

A NEW refinery is reported to have been officially opened at Budapest, Hungary, recently, with an annual refining capacity of 600,000 barrels of crude. The plant will receive crude by tanker, at the oil port. Four railway lines are owned by the plant which will transport the crude from the tankers at the dock direct to refinery storage. A feature of the plant is the large chemical laboratory which has been built, considerably larger than is usually provided for a plant of this size.

* * *

THE synthesis of hydrocarbons of the gasoline range from propylene and unsaturates found in the uncondensable gas from cracking petroleum, is the latest report from the French Academy of Science, according to information received from Assistant Trade Commissioner E. C. Taylor, Paris.

The French refining industry is carrying out a development program which will provide for the refining of 2,000,000 tons (12,000,000 to 14,000,000 barrels) of crude per year, and will include a considerable amount of cracking. No figures are available as yet to indicate the amount of synthetic gasoline expected from the method of utilizing still gases, but the increased production should add appreciably to the French liquid fuel supply, technologists believe.

The process is reported to consist essentially in passing the unsaturated gases over silica gel at 650 C., (1202 F.), with the production of liquid hydrocarbons, composed of benzene, toluene, and unsaturated hydrocarbons.

# New Refining Patents

**Distillation Control. U. S. P. 1 789 339, Jan. 20, 1931, application filed March 31, 1928; Warren K. Lewis, Assignor to Standard Oil Development Co.**

IN APPARATUS for controlling a fractional distillation by determining the lowest boiling constituents and adjusting the operating conditions accordingly, means are provided for automatic diversion of a minor part of the bottoms of which the composition is to be controlled.

The diverted portion is partially distilled under constant heat input, and the temperature of the vapor is measured. This diversion and temperature measurement may be either intermittent or continuous; in either case the indication of vapor temperature is used as a basis for adjusting the major distillation.

Manual control may be practiced, in accordance with the corrections indicated by the temperature readings; or automatic devices may be used to apply the corrections, intermittently or continuously. Thermocouples are used to indicate the vapor temperatures; and a constant temperature gradient is maintained, by suitable adjustment of the instrument box, between the two points in the column where the thermocouples are placed.

Any increase or decrease in e. m. f. gradient, resulting from a change in the temperature gradient, sets up a modified current. This change in current may be utilized to actuate control devices, which change the rate of flow of cooling liquid as required.

### What Is Claimed

Controlling the lowest boiling constituents of bottoms in petroleum oil fractionations, by uniformly abstracting a minor part of the bottoms, heating under constant heat input to produce vapor and residuum, rectifying the vapor and measuring its temperature, and modifying the conditions of the first mentioned distillation in such a way as to hold its temperature near a predetermined point.

* * *

**Natural Gasoline. U. S. P. 1 789 470, Jan. 20, 1931, application filed Nov. 25, 1925; Nathanial E. Loomis, Assignor to Standard Oil Development Co.**

IN THE absorption process of separating gasoline components from hydrocarbon gases, the absorption stock contains a large amount of dissolved fixed gas in addition to the gasoline components. This is particularly true in the commonly practiced pressure absorption method. The usual pressure release treatment not only fails to remove completely this fixed gas, but also permits escape of some of the gasoline components.

To overcome this difficulty in the separation of gas from absorption oil, apparatus has been designed which effects a substantially complete removal of the dissolved gas, without permitting any considerable amount of gasoline components to escape. It makes use of a fractionating tower having a large number of gas-liquid contact plates, e. g. bell-cap plates.

The absorption stock is introduced at an intermediate level in this tower, and the gasoline components are rectified in the presence of the absorption oil. The absorption stock is preheated, and the temperature in the tower is adjusted so that a portion, but not all, of the lowest boiling of the desirable gasoline components is vaporized. Thus, a suitable proportion of the butane content may be retained in the gasoline, lighter hydrocarbons being expelled; or, if desired, some propane may also be retained.

The process carried on in the tower is an absorptive rectification, which is different from known rectifications in absence of absorption oil. The gas taken off at the top of the tower is dry; and the gasoline which is produced is practically free from dissolved gas and "wild" vapors.

### What Is Claimed

Absorbing constituents of a hydrocarbon gas in a liquid which is nonvolatile under the conditions imposed, passing into and down through a vapor-liquid contact zone of which the lower portion is heated and through the upper portion of which flows a second, relatively cool liquid which is nonvolatile under the conditions imposed and which will absorb components less volatile than propane desired to be retained, and withdrawing the vapors.

* * *

**Purifying cracked Gasolines. U. S. P. 1 790 622, Jan. 27, 1931, application filed June 22, 1927; Arthur Lachman, Assignor to Richfield Oil Co. of California.**

IN THE sulfuric acid process of decolorizing cracked gasoline or other cracked distillates, the loss of valuable hydrocarbons may be as high as 10 per cent, and the consumption of sulfuric acid is a considerable cost burden; moreover, the treated gasoline often discolors when stored, and in some cases an additional treatment for deodorizing is necessary after the sulfuric acid treatment.

It has now been found that zinc chloride is an effective reagent for removing the undesirable impurities in cracked distillates, and that it yields a distillate which is water-white and remains so in storage. It has the further advantage of reducing the gasoline loses to less than 2%.

In carrying out the new process, the distillate to be treated is passed, in the vapor phase, through a concentrated (70-85%) solution of zinc chloride at about 150°C. Usually the gasoline so treated is pure enough for immediate use; in cases where it retains undesirable amounts of hydrogen sulfide, it can be finally purified by washing with dilute alkali. It is an important feature of the new process that the zinc chloride solution which is used is saturated with zinc oxide or hydroxide. It is also important, during the process, to maintain the zinc chloride concentration within proper limits, loss being made up by addition of water or water vapor.

### What is Claimed

Refining mineral oils by passing their heated vapors through or in contact with a maintained aqueous solution of zinc chloride containing 1 to 3% by weight of zinc hydroxide, and then condensing the vapor.

* * *

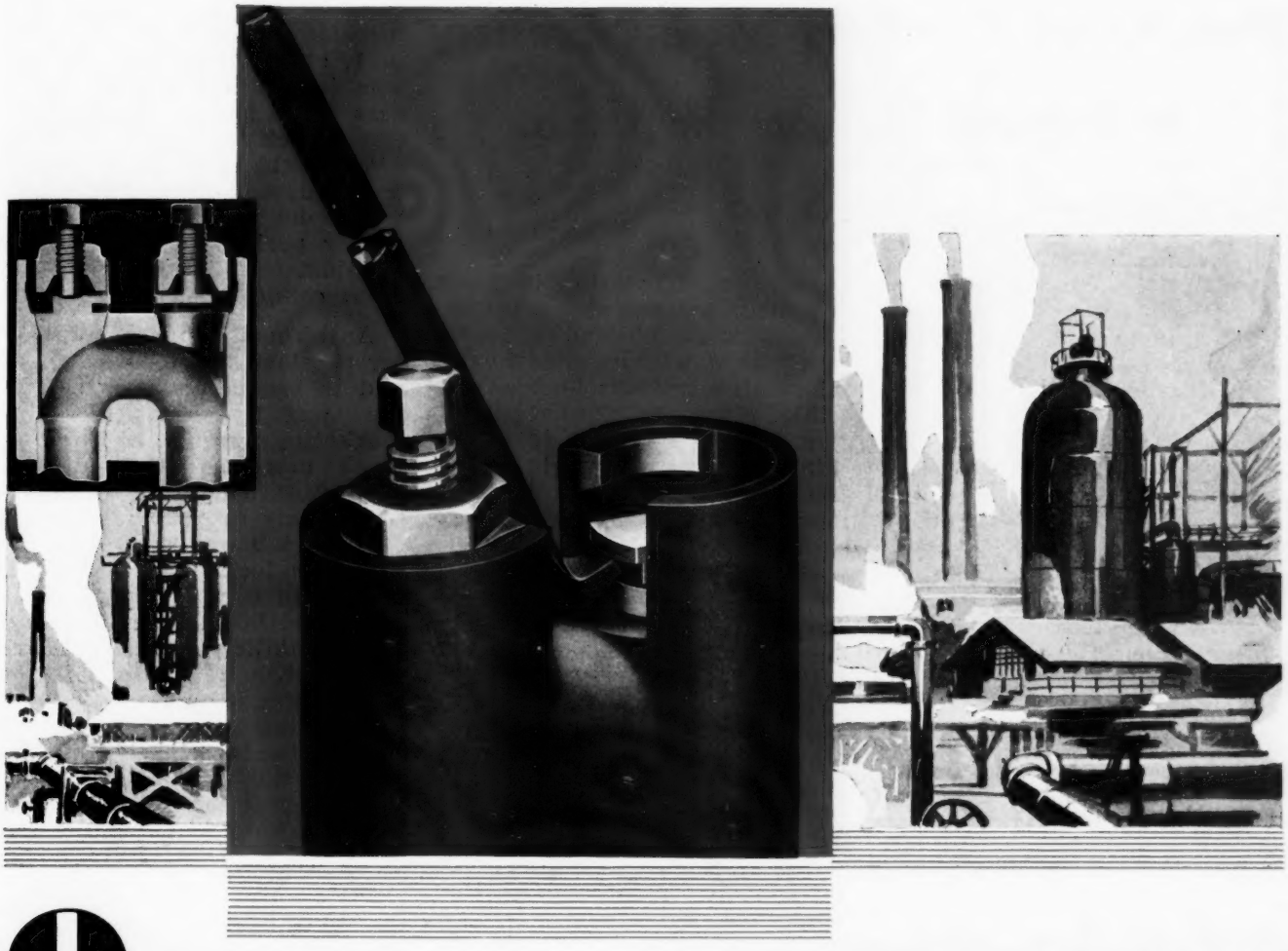
**Dewaxing Oils. U. S. P. 1 791 329, Feb. 3, 1931, application filed Oct. 27, 1921; Horace B. Setzler and Mert C. McDonald, Assignors to National Refining Co.**

AS a means of circumventing the difficulties encountered in removing amorphous wax from heavy oils, it has been found that a large proportion of the total wax content can be removed by chilling the oil and treating it with sulfuric acid under certain favorable conditions.

The oil is preferably first dehydrated, then chilled and treated, in an agitator, with the calculated amount of sulfuric acid. The acid should be 66° Be. or higher, oleum being suitable for the purpose. The temperature to which the oil is chilled may be, for example, 35° F. To counteract the temperature rise due to heat evolved when the acid and oil are mixed, the agitator may be cooled by artificial refrigeration. The acid sludge which is formed contains the greater part of the wax, and the residual oil is much clearer than before the treatment.

### What is Claimed

Treating selected petroleum oil with sulfuric acid, below 40° F., whereby the fluid constituents may be approximately freed from amorphous wax.

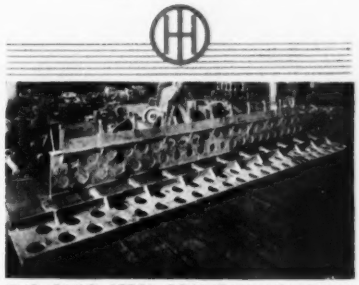


# OHIOLOCK FRICTIONLESS

## . . . . THE TRIPLE-FEATURED RETURN BEND!

It isn't any wonder leading refiners specify OHIOLOCK Frictionless. Three striking features combine to make this return bend ideal for modern cracking plants. For instance—at tube cleaning the Ohiolock Closure saves hours of labor and production time by its swift, easy removal. Then—there's the FREE FLOW feature that increases throughput 15% to 20%. And—when it comes to service—consider the fact that OHIOLOCK Frictionless bends are made from HI-STEEL—the proven cast electric steel for resisting the destructive action of hot oil under pressure. Put these three features together and you have a perfect bend—the bend that has made a name for OHIO in the refining industry . . the bend that meets every difficult requirement of the cracking process.

**Fahrite tube supports insure great load carrying strength under high temperature.**



THE OHIO STEEL FOUNDRY COMPANY
SPRINGFIELD, OHIO

Plants in

Lima, Ohio · Springfield, Ohio · Bay City, Mich.

SALES OFFICES

| | |
|---|---|
| Chicago | 1313 Peoples Gas Building |
| Los Angeles | 2800 S. Alameda Street |
| Philadelphia | 22 S. 15th Street |
| Cleveland | 1510 Terminal Tower Building |
| New York | 72 West Street |
| Tulsa | 422 Wright Building |

# OHIO CAST STEEL

· FOR PERMANENCE ·

# Anti-Knock Gasolines More Necessary In England Than in the U. S.

By R. A. Ogston*

OWNING and operating an automobile in Great Britain is still, even in 1931, somewhat of a measure of social distinction, and this state of affairs is by no means entirely attributable to the fact that the standard of wages and salaries in England is, on an average, about 20 per cent lower than that prevailing in the United States. The main reason is found in the fact that the cost of running a car in Britain is just about 150 per cent more than the cost of operating an automobile of similar size in America.

The inevitable result is that Britain with a population of about 48,000,000 has less than a million and a quarter privately owned cars, or about one to every 38 of the population, against America's 26 million, equivalent to one car to every five inhabitants (or 4.8 to be precise). The burden of exorbitant taxation has also had its effect in curbing the development of road transportation, and in 1930 there were less than half a million trucks registered in the British Isles, as against America's total of nearly four million.

And now let us examine the extent of British motor taxation. The biggest item is the so-called horsepower tax which was imposed in 1921, the gasoline tax which then existed being discontinued. This tax was fixed at one pound, or $4.85 annually per horsepower of the car, the horsepower being determined for the purposes of tax by means of a formula only taking into consideration the number and the internal diameter of the cylinders. For instance, a 6-cylinder Buick car having a bore of 3¾ inches was assessed at 34 horsepower, and consequently paid a license tax of 34 pounds, equivalent to just $165 per year.

As was inevitable with such a system of taxation in force, English automobile manufacturers were obliged to equip their cars with motors having as small a cylinder bore as possible, since the annual licensing fee on a car of relatively high horsepower would represent quite a substantial proportion of the price of the car.

This trend of design has been most marked, and in 1929 of the million or so cars registered, 825,000 were rated at less than 16 horsepower. The balance of 175,000 were chiefly accounted for by American cars, such as Essex, Buick and Chrysler, and a few British made cars of high horsepower such as Rolls Royce, Daimler, Bentley and Sunbeam. Over a quarter of a million automobiles were registered in that year in the 12 horsepower class alone, most of which would be Morris cars paying a license fee of $56; this being the most popular make of car in England.

Being restricted to limiting the bore of the cylinders, the British motor manufacturer had to turn to other means of increasing the power output of his motors, and this was obtained by increasing the compression ratios and operating at a higher rate of r.p.m. Moreover, the demand for high-efficiency motors was still further stimulated when the British Government, not content with its horsepower tax by means of which it had paved every road in the United Kingdom, in 1929 imposed an additional tax of 8 cents per gallon (equal to a little over 6 cents per U. S. gallon) on all gasoline refined from crude petroleum, (home produced benzol distilled from coal being thus exempt.)

Consequently, as long as four or five years ago English cars were being sold with compression ratios as high as 5½ to 1, and quite a normal ratio was 5 to 1. Moreover, these cars would have diminutive motors, which to American standards would seem sadly underpowered, and as a result they would be operated for much longer periods at full throttle opening, that is at *their maximum compression ratio.*

Anti-knock thus has been for the last six or seven years, and is becoming more so, the the most important factor in marketing gasoline in England. Much more so than starting properties, since the temperature rarely drops below 32° F. and much more than qualities as vapor lock since the shade temperature rarely rises above 75° F. On the other hand, color stability means a lot to the English motorist, and he has not yet caught on the idea of colored gasolines, which makes the task of the refiner endeavoring to supply a gasoline of exceptionally high anti-knock value all the more difficult.

It is only natural to expect that with such marketing problems, a tremendous amount of investigation has been carried out on the subject of anti-knock by English oil companies, even though Britain is not an oil producing country, and as far back as 1922 Ricardo designed a variable compression engine and also measured the rate of flame propagation of various fuels. Most of the larger English oil companies adopted this engine for testing the anti-knock values of their fuels, and for carrying out research in endeavoring to satisfy the ever-increasing demand for gasolines which would not knock in the small high compression British cars.

Today, the standard of knock rating of gasolines sold in the United Kingdom is a good deal higher than that in the United States, and has been for some time past. Some of the companies have achieved this by blending up to 30 per cent benzol with their gasolines, and others have obtained good knock rating by marketing re-run cracked distillates and gasolines distilled from cer-

*Cities Service Oil Co., Ltd., London, Eng.

# STOCKHAM FITTINGS

## *for straight lines and strength*

**The Stockham superlative quality standard has placed a new measure upon pipe fitting requirements. No longer will "any make" of fittings do for the man who takes pride in his work and has no time to waste. Today, Stockham Accuracy, that makes it easy to build straight lines with tight joints, is the measure of true value. Be sure the name Stockham is on the fittings you buy, for then you may be certain of the dependability that you have a right to demand in the materials you use.**

**STOCKHAM PIPE & FITTINGS CO.**
***Birmingham, Alabama***

***Stocks in Boston, New York, Chicago, Houston, Los Angeles***

tain crudes of high aromatic content.

The writer has carried out a good deal of investigation on the problem of anti-knock, with the aid of a variable compression engine and also by correlating a large number of road tests on English roads. Incidentally, it should be mentioned that the very nature of the average English road still further aggravates the detonation problem, in that many more hills are encountered and they are considerably more winding, (necessitating slowing down and then accelerating), than the average American highway.

Most of Britain's highways are developments of tracks and stage coach routes made several hundred years ago before the development of surveying, and consequently very few roads are anything like as straight or free from grades as the average highway one encounters in the United States, where most of the road construction has taken place only over the last 25 years.

In the writer's opinion the anti-knock value of a fuel is more closely connected with the spontaneous ignition temperature of that fuel than is usually assumed to be the case, most research having so far been conducted along the lines of investigating the actual rate of the propagation of the flame. However, it will probably be found that the rate of flame propagation will vary inversely and proportionately with the spontaneous ignition temperature.

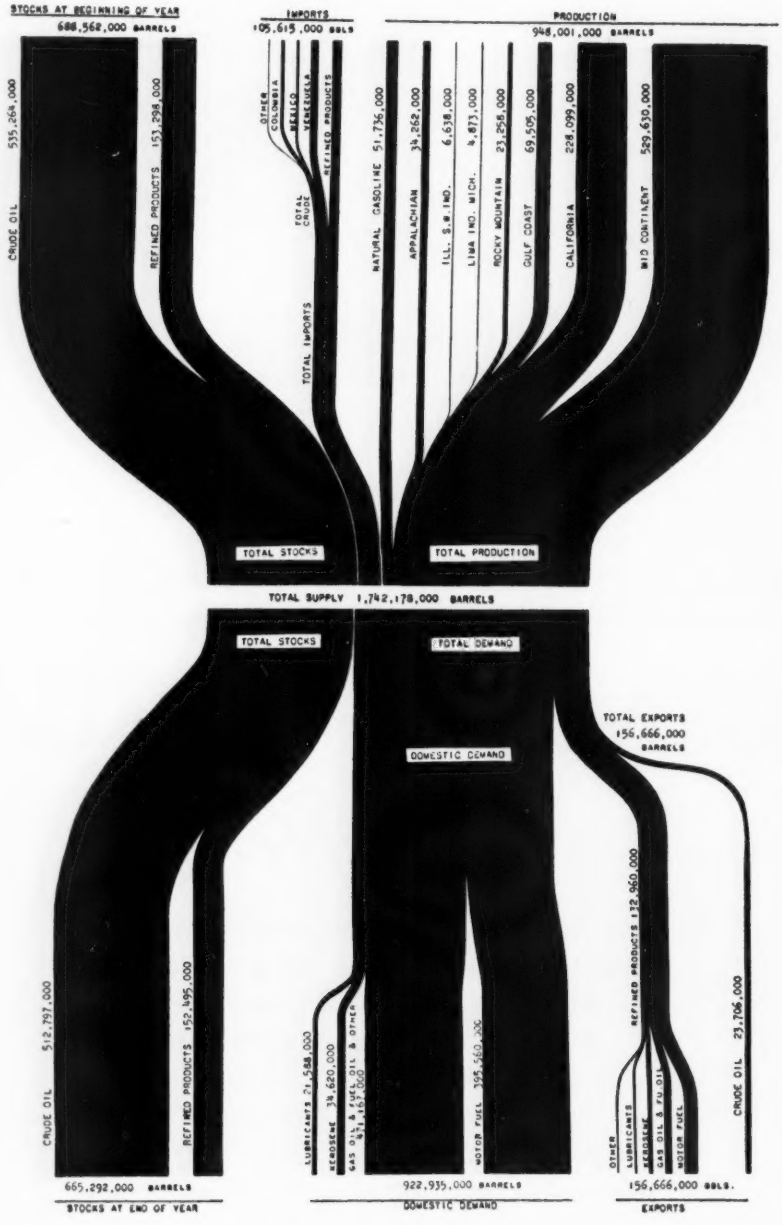
Thus a gasoline of poor anti-knock value and a very rapid rate of flame propagation would have a spontaneous ignition temperature of, say, 680° F. Benzol, which has a very good anti-knock value has a spontaneous ignition temperature varying from 1000° to 1150° F. in air, and it has been found to have a relatively slow rate of flame propagation.

Undoubtedly years of research will be necessary before any outstanding method is developed of doubling the anti-knock value of present-day gasolines, but the fact remains that the whole future and probably the very existence of the gasoline engine depends on its present very unsatisfactory efficiency being very considerably increased, and the only practicable way at present known is by stepping up the compression ratio.

---

The Philippine Islands imported 1,107,000 pounds of lubricating greases the first half of 1930 from the United States, out of its total grease imports of 1,144,000 pounds.

## U. S. Oil Supply and Demand in 1930




THE accompanying chart breaking down supply and demand for petroleum and its products was prepared for Ernst and Ernst, New York accountants, for publication in their current weekly bulletin. The chart indicates the source of new supply of both imported and domestic oil in 1930 and breaks down demand into exports and domestic demand by products.

The chart does not include stocks of natural gasoline in the hands of manufacturers at the beginning or end of the year or the production of benzol which totaled 2,689,000 barrels during the year. The chart was prepared by the patented Cosmograph System, Washington.

ADVERTISING PAGES REMOVED

# Lube Tanks on Mezzanine Floor Save Space in Bulk Plant

LOUISVILLE

TWO storage compartments are provided in the lubricating oil warehouse of the Continental Oil Co., Louisville, Ky., by placing the storage tanks on a mezzanine floor. This arrangement also has helped in heating the building as the tanks are near the warmest part of the warehouse under the roof.

One of the storage compartments has 300 square feet of floor space. The other stores 300 drums.

The new lubricating oil warehouse is a rectangular building. Across the back and down one side is the mezzanine floor for storage tanks and blending kettle. Across the front, and down the opposite side, on ground level is space for storing six trucks.

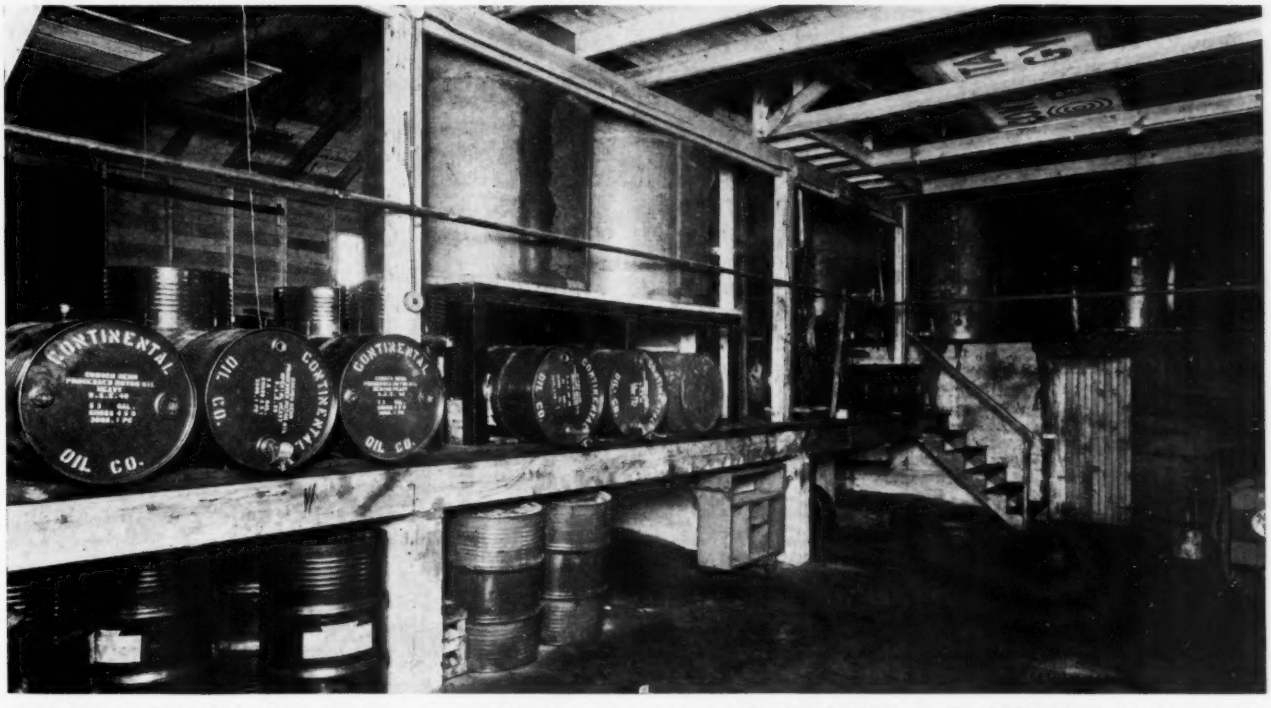
The mezzanine floor across the rear has a concrete floor and side. On top are five 2000-gallon vertical tanks; two for bright stocks and three for finished oils. Underneath is 300 square feet of storage space for drums and supplies. This storage space is entered through a door at ground level, and is shut off from the warehouse by the concrete side. A man may stand erect in this storage space.

The mezzanine floor along the side is of wood, five steps above ground level. Underneath is space for storing 300 drums. On this floor are two 1000-gallon vertical tanks for finished oil storage and the blending kettle. The storage tanks are raised about three feet with iron supports for gravity filling of drums. The finished oil storage on the concrete mezzanine is above the top of the drum also for gravity filling.

On the ground level is an L shaped space. Six trucks are stored in the warehouse over night. During the day in winter drums are washed on this floor. In summer drums are washed outdoors.

The first warehouse built by the company for lubricating oil now is used for finished oil storage. There are two 2000-gallon and six 1000-gallon tanks. In the front of the old warehouse is the company's office.

Neutral oils are stored outdoors with the light oil storage. On one side of the railroad siding are two 15,000-gallon tanks for gasoline. On the other side are five tanks, two 15,000 and one 10,000 gallons for gasoline, one 10,000 gallon tank for kerosine, and a 10,000-gallon tank for neutrals. All tanks are vertical. In front of the light oil storage, on the street, is one of the company's service stations. The station's underground storage




**Looking at the lubricating oil storage and blending kettle from the truck floor at the bulk plant of the Continental Oil Co. at Louisville, Ky. The bay under the mezzanine floor at the left holds 300 drums. Underneath the tanks at the right are 300 square feet of floor space for storage**

tanks are connected to the bulk plant storage.

The Continental Oil Co. is a distributor for Conoco brand of gasoline and motor oil, but is not connected with the Continental Oil Co. of Ponca City. The company has distribution in and around Louisville and in southern Indiana. Clarence E. Bauer is president. M. A. Bauer is vice-president. L. J. Connolly is secretary and treasurer.

# Letters to the Editor

## Discussing The «Two-Gallon Buyer» Series

Dear Editor:

It is with considerable interest that I have followed the series of articles appearing in PETROLEUM NEWS of the "two-gallon buyer." I was also greatly interested in the article appearing in the "News" of February 11, in which a station attendant had the courage of his convictions and turned the picture over so Mr. John Public could get a view of the reverse side. It is so seldom that the Public gets a view of this side of the picture that they are totally oblivious of the fact that any other exists—except that of *free service* and still more *free service.*

I was amused and considerably elated to think a mere station attendant had the guts to expose the reverse side of the picture when, as he says, the public do not ask, but demand as their right, the innumerable free services rendered. And unfortunately this is the exact truth. A word of thanks is as rare as the proverbial "hen's teeth." Although he has listed 10 or 12 free services required, he is totally oblivious of what, in my estimation, are the high lights of the business and should add at least five more, in the name of "service free," which, incidentally, is the reason for this article.

I have been a station owner and attendant for five years and have probably furnished all the colors that go to make up the reverse side of this eternally flaunted "service" picture. I have been the recipient of as many impositions and studied insults as is possible to crowd into that space of time, and believe me, Mr. John Public has plenty up his sleeve.

He not only *demands* 15 or more free services, but generally succeeds in the attempt to carry his contempt for the dispenser of so much free service. And in this attitude I heartily agree. He (the station man) deserves it. He has earned the right to it. When a self-respecting American Citizen is obliged to crawl, yes literally crawl, in the slime, he suspends his right to the title.

I should hate to be obliged to tell how many times the following scene has been enacted. A couple of young bloods dash up with girls, stop with a flourish by your gas pump, jump out, march up to the attendant and say, "See if I need grease in the rear end"—which, by way, he knows perfectly well will gush out, covering the attendant and his tools with a gooey mass while he is lying on his back and his eyes filled with dirt.

After they have all returned one of them will remark with an insolent smirk, "How did you find it?" I answer, "Full up." He says, "O.K. Well I guess we're all set." And off they go. Just camouflage for their need of your free convenience which, incidentally, with the free air installations has cost you upwards of $1500 in addition to the cost of upkeep and accessories. You will always count yourself lucky if some of the accessories are not missing when they leave.

My friend of the article of Feb. 11, seems to evince a distaste of the "two gallon buyer" and what he requires free. As for myself the "two gallon buyer" or the "one gallon buyer" or the "quart-of-oil buyer" is as welcome as the flowers in May and I will gladly extend any or all of the 15 services. If he but show his disposition to extend his patronage to the man who furnishes it. *But the guy who gets my goat is the one who has no use for any little thing you have to sell.*

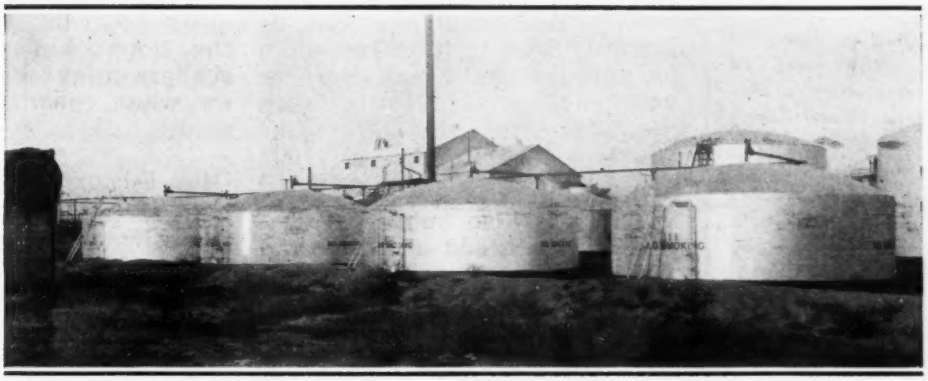
It might come as a surprise to some people that this type is legion, especially on the main trunk highways. This type will stop across the road from your station to make sure they will not be expected to buy anything, while the ladies debark from an elegant Packard, Lincoln, or Rolls-Royce and make their way across the main trunk highway with excessive heavy traffic, crossing at the risk of their lives in the snow and slush, to the ladies' Rest Room.

Another specimen of this same type, who drives a less expensive car, will stop at the far end of your drive so that he does not have to face the attendant who goes out to see what is wanted, and meets the ladies sneaking in the side

RESULTS of four surveys of general merchandising ability and alertness of service station salesmen have been published in recent issues of NATIONAL PETROLEUM NEWS. Results of one survey of efficiency in lubrication service at oil company and automobile dealer stations has been published.

These articles by the "Two Gallon Buyer" have attracted a great deal of attention among both oil company executives and the salesmen themselves. On these pages are given some comments on the various articles.

Following is a list of articles which have appeared to date: Jan. 7, Pg. 27; Jan. 21, Pg. 75; Jan. 28, Pg. 19; March 4, Pg. 105; March 25, Pg. 25.



# GRAVER TANKS

◆

THE Graver organization and the petroleum industry have grown up together. For almost 75 years, Graver has been making tanks for oil—for production, refining and distribution.

While tanks for storage are a common equipment item, there is as much opportunity for the economies that careful fabrication and experienced erection accomplish as there is in the more complicated process equipment.

Graver's experience is reflected in the service value of Graver equipment. Graver Tanks are really *Engineered Products.*

Let Graver engineers consult with you on your storage requirements.

◆

[ Graver is the largest designer and manufacturer of a complete line of water treating equipment. ]

## GRAVER TANK & MFG. CORP.

EAST CHICAGO, INDIANA

Chicago • New York • Cleveland • Ft. Worth • Tulsa

*Representatives in other principal cities*

# GRAVER

## STEEL PLATE CONSTRUCTION

# Greasing

***27 articles published in National Petroleum News the past 14 months have been devoted exclusively to telling how to sell lubrication service, how to grease cars properly and profitably. How to build greasing stations, how grease is sold and other grease problems, are also discussed in these stories.***

***Here they are for your file reference:***

**1931**

Free greasing keeps servicemen on toes Feb. 25, p. 76
Oiliness in lubricants is function of surface tension Feb. 4, p. 63
S.A.E. numbers applied to rear axle lubes Jan. 28, p. 30

**1930**

Auto dealers get warmer on lubrication business Dec. 3 p. 25
Lubrication built business for one station operator Nov. 26 p. 64
New greasing station has five lifts, 14 pressure, 10 hand guns Oct. 15, p. 91
"Certified lubrication" includes training in own school, lube charts, special merchandising problems Sept. 24, p. 161
Socony's list of lubrication points on all cars Sept. 24, p. 169
Lube oil resistance to decomposition Aug. 13, p. 63
Typical analyses of lube oils Aug. 13, p. 65
Advantages of new consistometer in testing greases, oils Aug. 6, p. 63
Shell's school on lubrication Aug. 6, p. 95
Lubritory nets 10% profit on tires without stock June 25, p. 99
Lubricating oil evaluation by work factor method June 11, p. 63
Grease plant has straight line operation June 11, p. 93
Lubrication school trains men to head department June 4, p. 95
Doubles lube sales by changing package May 28, p. 99
A.P.I. seeks delay of grease meter regulations May 7, p. 28
Lubrication specialist trains attendants with lectures Apr. 23, p. 86
Lube company has $55 barrel washer March 19, p. 163
Lube business so big grease disposal is problem March 12, p. 69
Lubrication service by appointment and contract builds steady volume March 12, p. 75
Tickler system costing $500 a year keeps lube customers coming Feb. 26, p. 85
Improper chassis greasing brings brake trouble Feb. 19, p. 93
Adopts paid-in-advance flat rate lube plan Feb. 12, p. 72
Charts show points to be greased by numbers Feb. 5, p. 34
How showmanship helps sell gear grease Jan. 22, p. 96

---

***Back copies of any of the above issues are 25c a copy. On issues that are exhausted, photostats will be furnished at 40c per page. Libraries in the larger cities generally keep back files of National Petroleum News complete.***

***National Petroleum News***
***Main Office: 1213 West Third St. Cleveland, Ohio***

door. These are again discounted by the vermin who drives up in front of a pump, blocking the drive for another customer, dismounts with alacrity and without a look or a word dives inside. But when he appears again, walks up to you and says, "How's business?" After receiving your courteous reply, he is also, "All set to go."

There is also another variation to this breed of swine and that is the guy who comes along, mostly at night, in a heavy rain or snow storm and is in trouble with his ignition. You get them in out of the storm, hook up your trouble light and help him trace it out, of course lending him tools. You put your best foot forward in the matter of courtesy and good will, try to help him out of his trouble, charging him nothing for the half hour or hour he has used your light, station and tools, you looking always to making a customer of him when he comes that way again.

You have to go out and wait on a customer or two and in your absence he drops a couple of your best crescent wrenches in his pocket—which you do not discover until afterward. He always thanks you for the accommodations and you think you have made a new customer until you discover the absence of the wrenches.

In spite of this exposition of the high lights of the service game, I have not completely lost faith in humanity. I *still believe* there are people in the world who are willing to live and let live. I meet them occasionally, but as regards the public attitude towards Service Stations, they are at the present date hopelessly in the minority. Should the public in the future show a disposition to live and let live and an appreciation of the courtesy and free conveniences furnished them, it would have, I am sure, a wonderful response among station men.

Up to the present, articles appearing in the trade magazines have in nearly all instances been directed to the end of more and better *free service* and courtesy. Your policy of open forum and invitation to express different views of this subect I heartily commend.

I trust you can see your way clear to print this article in the hope that some of your readers might get a new slant on what constitutes a square deal.

♦ ♦ ♦

Dear Editor:

Have read with interest your three installments of the "Two Gallon Buyer" in your excellent magazine and I must say here and now that the author of same couldn't have been very well informed as to the station attendant's side of this situation. Had he, himself, ever worked at the pumps in a present day filling station I'm sure such an article would never have been written in the light of a criticism towards the station attendant's lack of salesmanship.

I am almost sure that 99 out of every 100 "two gallons customers" couldn't be sold anything else for the simple reason that they haven't the money or else they would buy more than two gallons. A customer that orders two gallons of gasoline with 50 cents in his pocket is a poor prospect for a grease job or an oil change and I contend that nearly all such customers are just so fixed financially.

Had the author of these articles gone around and purchased five gallons at each station instead of two that would have been a fair means in checking up as to the selling qualifications of station attendants. When a filling station such as the one I have serves over 75 "two gallons" customers daily, who should be the better posted as to the reason they buy two gallons instead of five or more? When that reason is definitely established why criticize station attendant's lack of salesmanship toward this type of customer.

Very truly yours,
S. D. Arnold.

♦ ♦ ♦

Dear Editor:

It is only natural that close association with the oil industry brings the subject of service station operation constantly to my attention. It has been said that one can be too close

to a subject to see it clearly. This might easily be possible in the case of the service station owner.

For the past two years the writer has studied the sales possibilities of service stations and compared them with the sales efforts put forth. At the risk of being accused of trying to run some one else's business I am going to comment on some of the more generally apparent conditions to an interested outsider, and suggest remedies.

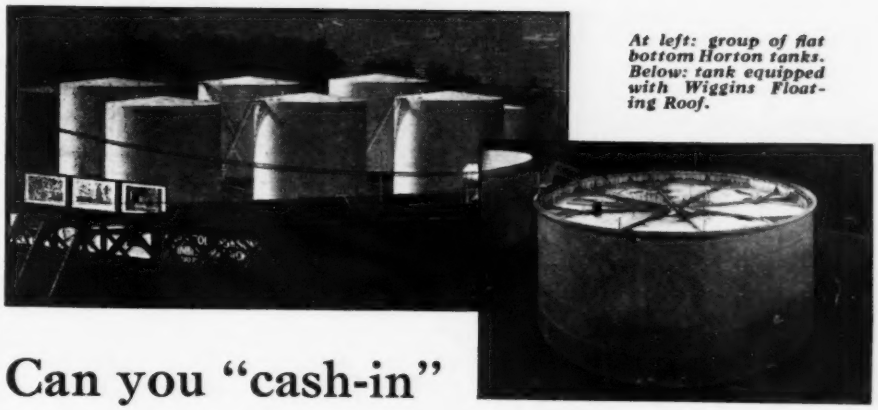
A few weeks ago I overheard a rather unpleasant interview between the manager of service stations of a fair sized oil company and one of the stations' employees. My friend the manager later told me the entire story, which in itself is interesting, and goes to show responsibility is too often without a proper resting place.

In this instance, the vice president of the company had driven into this station and received service which was not satisfactory. He was visibly displeased, asked the attendant's name, and drove away. He then called the station manager in and gave him the complaint with instructions that this must not happen again.

The result was the "calling down" which I listened to; it consisted in the main of needless abuse of the boy before others and a threat of discharge if it happened again, but worst of all was the parting thought made for the good of all within hearing—"If you fellows have to give sloppy service, don't give it to the officials of this company."

This manager of stations was evidently more interested in protecting his own position than in anything else, and made it plain that so long as the officials of the company got good service they would believe everyone else was getting it. After we left the station I asked the manager what report he would make to the vice president. "None" he replied shortly, "but if that man makes one more slip, out he goes." Evidently the issue was settled without the assistance of any of the facts.

I know this vice president very well and he was not concerned about his own vanity when the service was poor, he

*At left: group of flat bottom Horton tanks. Below: tank equipped with Wiggins Floating Roof.*

**Can you "cash-in" on the Summer gasoline increase?**

CHICAGO BRIDGE & IRON WORKS

Cleveland..2206 Midland Bank Bldg.
Houston.....1118 Electric Bldg.
Tulsa.....2407 Exchange Bank Bldg.
New York.3145 Hudson Terminal Bldg.
Philadelphia...2614—"1616" Walnut St. Bldg.
Boston...1516 Consolidated Gas Bldg.
Chicago.....2125 Old Colony Bldg.
Detroit.....1513 Lafayette Bldg.
Birmingham.....1534 Fiftieth St., N.
Dallas.....3339 Magnolia Bldg.
San Francisco.....1060 Rialto Bldg.
Los Angeles...1322 Subway Terminal
Havana, Cuba.....Apartado 2507

GASOLINE prices this Spring have touched the lowest point in years. The big Summer demand is just ahead.

With ample gasoline storage in Horton tanks you can make extra profits by holding stocks, and you can take advantage of special refinery offerings. Our plant facilities enable us to give quick service on tanks of all capacities, field erected, welded or riveted construction. Field erected tanks may be furnished with Wiggins Roofs, which protect your stocks from evaporation loss and fire hazard.

Let us quote you on Horton tanks and Wiggins Roofs for any location. Address our nearest office.

**HORTON TANKS**

NPN 4-1 Gray

**BETHLEHEM WAX PLANT EQUIPMENT**

*Filter Presses* — *Wax Moulding Presses*
*Wax Distillate Chilling Machines* — *Scale Wax Cooling Drums*
*Wax Testing Presses* — *Paraffine Wax Sweater Plants*
*Complete Wax Plants designed and built*
*Pumps, Stills, Towers, Condensers, and other Oil Refinery Equipment*
*Oil Burning Systems*

BETHLEHEM STEEL COMPANY, *General Offices: Bethlehem, Pa.*

*District Offices:* New York, Boston, Philadelphia, Baltimore, Washington, Atlanta, Pittsburgh, Buffalo, Cleveland, Cincinnati, Detroit, Chicago, St. Louis.

*Pacific Coast Distributor:* Pacific Coast Steel Corporation, San Francisco, Los Angeles, Portland, Seattle, Honolulu.

thought if he got poor service his customers got equally poor service, and that concerned him, as it should do. Being one of those quiet men who do not talk enough, he implied that the station manager would know why he complained. Well, as it so often happens, he did not know.

An interview with the service station employee brought out further interesting data. He was a fine young fellow who needed the work and the day the vice president, whom he did not know, came in for gas was his first day on the job. When asked how much training he had he replied simply "One of the men showed me how to operate the pumps and told me the prices."

That was his training! But the vice president did not know this. Who was responsible? The attendant? Certainly not, no one had ever told him how to sell gasoline. The service station manager? No, he is an excellent man on equipment, reports, new installations, has no sales training and has too much to do as it is. Is the vice president at fault? Most emphatically YES. He made no attempt to get the facts, he was so wrapped up in having someone else get them that none of them ever saw the light and the truth never came out.

Here stands a service station with an important amount of money invested in its physical assets and the men operating it are told how to operate the pumps and the price of gasoline as a training course. They learn the rest themselves, if they don't get discharged beforehand.

Why is it that oil companies, large and small, realizing that their most important sales outlet is through the service station make such a feeble attempt to develop their stations as a sales outlet?

Some of you claim you do, emphatically claim it. Well in my two years of quietly observing conditions (and I have probably been in some of the readers' stations) you've not accomplished much along that line. There are some exceptions of course, but putting on a side show while a motorist is buying a few gallons of gasoline, such as wiping off the car with a rag, filling the tires, etc., is not one of them.

I do know, however, of one of these exceptional men. He developed h i m s e l f somehow, knows the name of his regular customers and has their confidence—one is the head of a large industry. This service station attendant's company is trying to get the industrial lubrication for this man's plant. They don't have it, but I know that this service station attendant could go a long way toward getting it without leaving the station if he only knew his company wanted it or were trying for it. Yet his employer, a national oil company, has no idea of his possibilities and apparently have no way of finding them out.

Someone is going to give this subject the study it deserves, a definite system for training service station salesmen will be instituted, the station will be the starting point for all salesmen in the company. They will be promoted from this point. Right now you dress them in uniforms, in many cases there are good reasons for it—but after all they are the only salesmen I know of in uniform.

Train them—call them salesmen, show them definite promotion, appoint some important member of your company manager of service station sales with the selecting, training and supervision of service station salesmen as his duties. Make him responsible for service station sales.

The most glaring defect in the training of station salesmen, as I see it, is the lack of leadership shown by their superiors. These station men are doing work which calls for development of their social possibilities, they are in the business of meeting and talking to people in all walks of life, they must be versatile. The rank and file of these men probably never have had this highly important training which you think perhaps, because you possess, everyone has.

There are some pretty delicate points involved here, all of which could be handled nicely in some sort of training class, or in bulletin form. Men, if worth having at all, are anxious for such training and teaching, yet they are unlikely to ask for it outright.

Developing your specialized sales force from this source so far as possible as a fixed policy will attract a better class of men to your stations, knowing that promotion to better positions is your policy. There is a vast amount of educational work you can do with your men which will show direct results in profits. You must be willing to train these men at your own time and expense, and you cannot get any ready trained service station salesmen—**they** do not exist, but they are going to come into the field quickly for there is great need of them. They may be the solution of the "price problem."

G. W. McDougall, Sales Mgr.
Erie Meter Systems, Inc.

♦ ♦ ♦

Editor:

In connection with self service gasoline stations, we had several years ago an experience which might be of value to you.

We had a pump in front of our office and one day while the attendant was busy in other work, one of our customers attempted to serve his own Reo truck. A foreigner, just over from Europe, lit a cigarette, and although the hose was properly inserted at the tank, the gas took fire at the opening.

The owner was much pained to see his brand new truck on fire and, although the fire was of no consequence, he jerked out the hose with considerable hurry.

The hose was removed with such speed that about a pint of gasoline spilled on his arm and side. This was just enough to cause his death although we rolled him in an office rug.

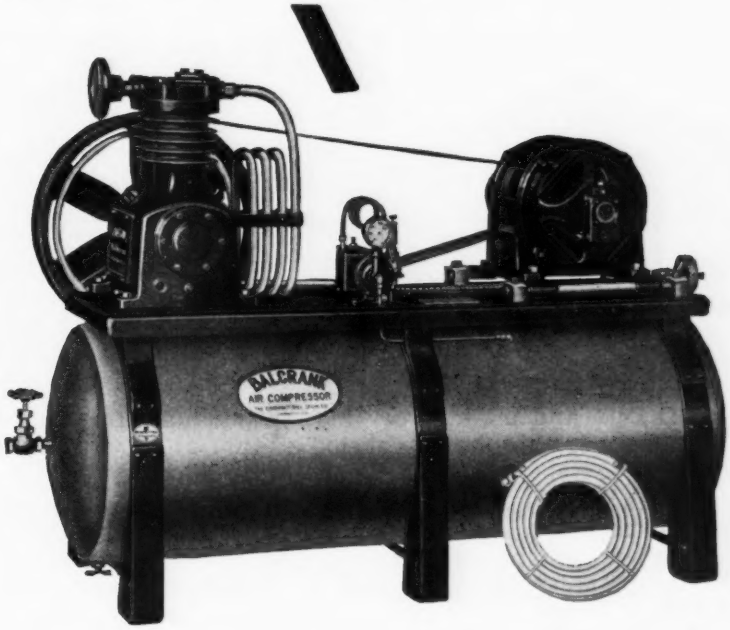
This accident, we assume, was one that would be likely to happen with any self-service apparatus. This accident occurred on Neville Island, near Pittsburgh about 1922.

The writer is no longer engaged in the gasoline business but in liquid gas for cooking; and this letter is written in our interest in safety as our work is always largely connected with safety in selling inflammable gases.

Yours very truly,
Imperial Gas Company
President—A. N. Kerr

# AIR
## WHEN YOU NEED IT

Your air problems should make you investigate air compressors pretty thoroughly before ordering. And . . . if you do . . . You will find that the Balcrank Air Compressor is the most efficient on the market . . . giving you more air in less time than any other unit. Don't make the expensive mistake of expecting an inferior, inefficient air compressor to do the work of a Balcrank. Balcrank Air Compressors are far ahead in engineering design and construction . . . manufactured by a company which has served the automotive industry since 1906. There is a complete line of single and two stage Balcrank Compressors. THE CINCINNATI BALL CRANK CO., CINCINNATI, OHIO.




## BALCRANK
### COMPLETE SERVICE STATION EQUIPMENT

Balcrank manufactures a complete line of lubricating and greasing equipment — electrically — air — or manually operated. Electric globes, etc.

# BALCRANK
# AIR COMPRESSORS

# Lincoln to Vote on Discontinuing Municipal Gasoline Station

LINCOLN, Neb., March 23

VOTERS of Lincoln will pass on the question of discontinuing the municipal gasoline station at an election April 7. A petition containing more than 5000 signatures of men from all walks of life, was filed by Independent station operators with the city council. It asked a vote be taken on repeal of the city charter section which enabled Lincoln to compete in the gasoline and oil business with its own citizens.

Lincoln was enabled to enter the gasoline and oil business through the adoption of a charter amendment in November, 1924. Since then the city has operated a station which has not been burdened by taxes, interest on investment, management expenses, and other items imposed on private enterprises.

With the submittal of the petition the following committee issued a statement setting forth the oil men's case: O. D. Corey, City Fuel Co.; Earl Coryell, Earl Coryell Co.; Oscar C. Weiss, Weiss Oil Co.; P. R. Chevalier, Chevalier One-Stop Station; O. A. Barber, A. B. A. Oil Co., and O. J. Shaw, Lincoln Oil Co. The statement follows:

"The petitions for submission to the voters of Lincoln for repeal of that section of the city's charter which put government into competition with individual enterprise are presented in response to an overwhelming sentiment in the community that such competition by the city against its own citizens and taxpayers is not only inequitable but indefensible.

"There can be but one division line between the functions of government and private enterprise consistent with individual initiative and opportunity. Wherever government enters the fields of trade and commerce, individual business is sentenced to unjust penalties and probable death.

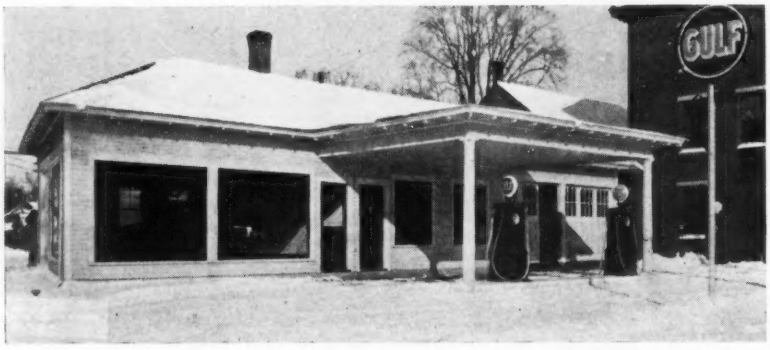
"Where a natural monopoly exists, the community determines between public ownership or regulation, but where competition exists in the business itself, the entrance of the government into the field is totally unjust and finally destructive of the business of the citizen.

"There is no business in the United States so highly competitive as the oil business. The competition in the gasoline business has become so vicious that the national government is now seriously considering the necessity of taking some steps to provide against utter ruination of the entire industry.

"The present Nebraska legislature recently refused to sanction the principle of government competition in business. The gasoline business is a free, open field and any citizen or group of citizens, are privileged to enter the field either individually or on a co-operative basis. In many communities in Nebraska co-operative agencies are established to supply their members or the community at large, with gasoline. Farmers co-operative stations pay their taxes in the same way as other business competitors. They do not receive any support from the government either in the use of tax-exempt property, or by management by public officials whose salaries are paid out of taxes. Lincoln alone is engaged in destructive competition with its own citizens.

"Under existing conditions the local independent dealers are forced to adopt a policy of retrenchment which will further aggravate unemployment if this unfair competition is allowed to continue. They will be compelled to reduce their already

## This One-Stop Costs Only $9760




A ROOMY and modern service station built for a modest sum is this frame service station of W. R. Gilkey & Son, at Searsport, Me. on the Atlantic highway.

To the right is the lubrication department, in the center a sales and stock room and to the left, a Buick sales room. There is also space for a tire and service department, and rest rooms. Oil is used to heat the building.

The building is 52 by 28 feet, on a lot 75 by 60 feet. It is opposite the Searsport National Bank and half way between Bangor and Rockland, Me.

Large display windows give the public an almost complete view of the interior, and afford space to show them what you're selling. Cost of the land and building, without equipment, was $9760.

Gulf Refining Co. products and Goodyear tires are handled exclusively.

depleted ranks of employes to a single shift.

"With a municipal gas station in operation, unburdened by taxes, rent and other items of overhead independent oil dealers will ultimately be forced out of the field and the business of selling gasoline here will then pass into the hands of the oil producers and refiners. The issue at stake is not limited to the oil business but is vital to every business organization and to every employe in Lincoln.

"This issue is submitted to the voters of Lincoln. The undersigned independent oil dealers of Lincoln appeal for a hearing of their case during the next thirty days. The voters of Lincoln must be the judge and jury on the merits of our claims.

Public prosperity cannot be built upon private impoverishment."

---

### Compressor For Light Oil and Grease

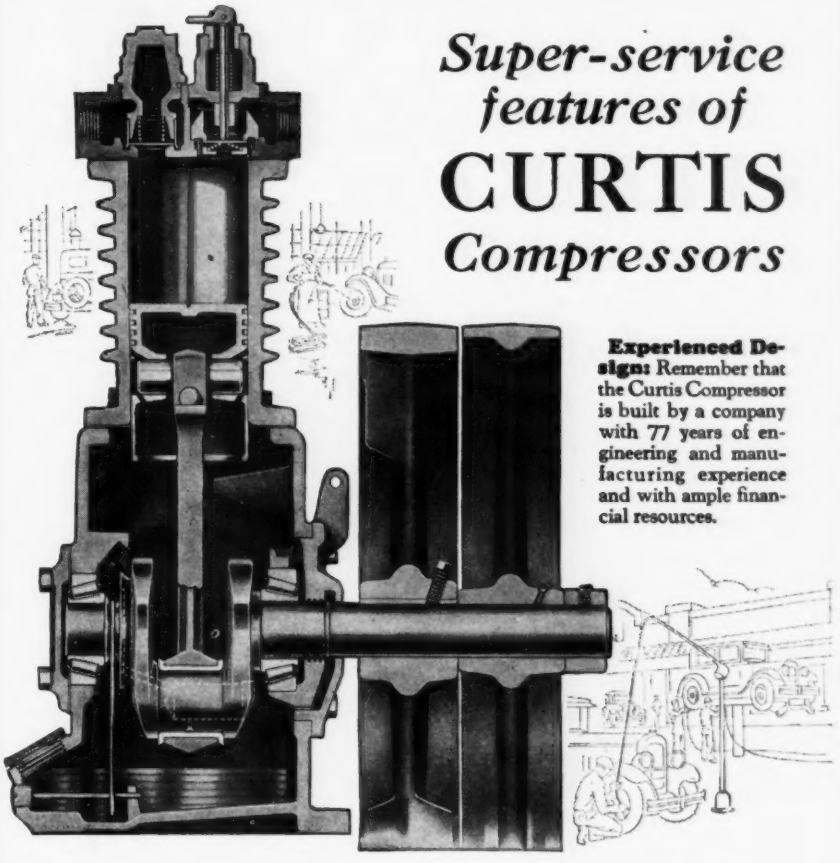
A central lubricant compressor designed to deliver light or heavy oil or light grease through piping or tubing to lubricators at the bearings of a machine, is the model 0-10 Gun-Fil compressor, made by the Gun-Fil Corp., Philadelphia. It is for use on all types of industrial machines.

The compressor is hand operated. Good volume and good pressure are easily developed when the pump lever is pulled away from the machine.

The compressor has a self-contained adjustable check valve and air relief valve. A pump handle that may be operated in four positions and a cover that swings to either side for convenience in filling are other features. The pump is a plunger type.

* * *

**Dill Mfg. Co., Cleveland, O.,** has developed a shop cabinet for storing tire valves and tire parts. It is attractively lithographed in three colors, has 12 bins for easy identification and can be used on the wall or on the work bench. It is the result of a suggestion, the company says, made by a tire service man and a thorough investigation among shops to produce a storage cabinet that would meet the requirements of the average dealer.

*Super-service features of*
CURTIS
*Compressors*

**Experienced Design:** Remember that the Curtis Compressor is built by a company with 77 years of engineering and manufacturing experience and with ample financial resources.

**Precision made:** Pistons and rings precision ground on latest type automatic grinders, and running in honed cylinders, make possible an extremely small cylinder-wall clearance, increasing efficiency. Crankshaft and piston pins ground to micrometer finish.

**Timken Tapered Roller Bearings,** permit greater speed, reduce bearing trouble, provide take-up for wear, indefinitely lengthen life of compressor. Timken equipped means there is no chance for a bearing to heat and melt, or "freeze" as with phosphor-bronze bearings, and ruin bearing and shaft.

**Positive Centrifugal unloader:** Gummed oil, dirt, scale or power failures cannot prevent this automatic device from operating. Thus Curtis Compressor is definitely protected against starting under load and burning out motor.

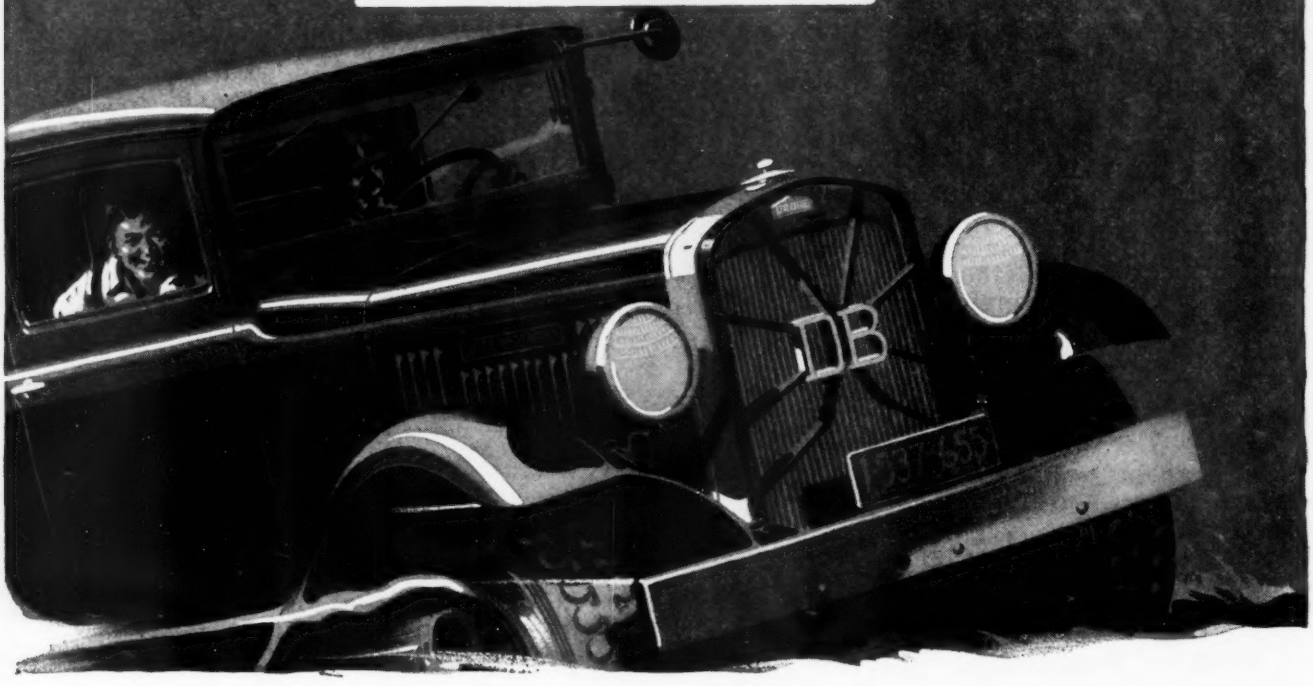
**Positive Centro-ring oiling system** [patent pending]. A ring lifts oil from reservoir to a special undercut groove in crankshaft. Here centrifugal force carries oil under pressure thru duct to a chamber in crankshaft; from there oil is redistributed by centrifugal force to the ribs in crankcase. These ribs catch the oil thrown by revolving crankshaft and lead it directly in controlled volume to each friction point. There can be no random splashing of oil which may cause excess oil to be carried into air lines.

CURTIS
Pneumatic Machinery Company
St. Louis
1965 Kienlen Ave.
St. Louis, Mo.

CARE WILL SAVE YOUR CAR

5N

# HUNDREDS IN YOUR INDUSTRY HAVE PROVED THE VALUE OF THESE *HEAVY-DUTY* TRUCKS



There is no guess, no experiment on the part of those in the oil industry who select Dodge Heavy-Duty Trucks. Business men in your industry and many others have proved the value of these sturdy, modern workers. » » Dodge Heavy-Duty Trucks are available in an unusually wide variety—with payload capacities as great as 11,175 pounds. Inspection—part by part—proves that they are *all truck*—that they are ruggedly built of precision parts. And that all parts are correctly proportioned, one to the other, to insure long, dependable service at low cost. » » No matter how heavy your loads may be, there is a Dodge Heavy-Duty Truck that will fit your needs. So see your Dodge Brothers dealer. See, inspect and test these exceptional trucks. You can buy one complete with standard or special body—at a price you will say is low.

THE COMPLETE LINE OF DODGE TRUCKS RANGES IN PAYLOAD CAPACITIES FROM 1,200 TO 11,175 POUNDS—PRICED, CHASSIS F. O. B. DETROIT, FROM $435 TO $2695, INCLUDING THE 1½-TON CHASSIS AT . . . $595

## DEPENDABLE DODGE HEAVY DUTY TRUCKS

# Jobbers in South Employ Supervisors To Help Operators Merchandise

By E. L. Barringer
N. P. N. STAFF WRITER

PENSACOLA, FLA.

THE supervisor is used extensively among oil marketing companies in the southeastern states to assist dealers and renters of company controlled service stations in merchandising.

In cities where a company has numerous retail outlets one man will devote his full time to supervising stations. He will call at the stations frequently for a general inspection of equipment and housekeeping methods, and help the operator increase sales, either by constructive criticism of his methods in the station or by going out and soliciting accounts in the neighborhood.

In the rural communities and small towns where a full time supervisor is not warranted many companies place the local bulk plant agent in charge of retail outlets. In addition to the bulk plant agent the stations will be checked by traveling salesman or by a supervisor who covers many counties.

Training schools are used by two major companies that operate their own stations.

One company selects several of its better stations in each large city as a training ground for new employes. All new men are sent to one of the designated stations and they remain until there is an opening at another station. These training stations are selected on the basis of the manager's ability as a merchandiser and his ability to train new men.

The other major company puts new men in with the older men at its better stations to learn details of station operation. Merchandising methods are taught at the weekly sales meetings.

Both of these companies have supervisors, one company checks its stations twice a day and the other one once a day, to inspect on cleanliness and to see that the service comes up to the company's standard.

An executive for another major company that formerly operated its own stations has this to say about the first training of new men:

"In selecting a training station be sure that it is a busy one. We employed men who had no experience in stations so we started them off at a successful station. They had the feel of working in a station that had many customers. Consequently when these men went to other stations they were not content to sit around an accept business as it was. They had tasted success and wanted more."

The supervisor is used extensively by companies renting their stations to operators. The highlights of the experience with supervisors and their methods are given below.

A LARGE company with many outlets in one of the larger cities has taken a city salesman as a station supervisor. About 80 per cent of the work day he is at the stations. The other 20 per cent is used in writing general letters to operators, and in checking sales data to find weaknesses.

This supervisor works with the men to show them merchandising methods. In illustration of this point there is his experience at a station in a small town near the city.

While the supervisor was in the station a customer drove in asking the location of a station of a competing company. The station operator politely enough gave directions but made no effort to sell the customer on his own goods.

The supervisor kept in the background until he was certain that the station operator was not going to try to sell the customer. Then he stepped into the conversation, to sell the customer if he could, and to show the operator how it was done.

"What grade of Blank Oil Co's. gasoline are you using," said the supervisor as he approached the driver, whom he judged was a traveling man.

"Why I use their high test gas," replied the customer.

"We have a gasoline here that we think is as good as that gasoline and we'd like to have you try it."

"All right, give me three gallons," said the customer.

As he was completing the delivery of the gasoline the supervisor remarked that when the customer got into the larger city nearby gasoline would be higher on account of the city tax.

"All right, make it five gallons then," the customer replied.

Thus that station sold five gallons of gasoline which would have slipped out of its grasp because the operator was not alert to his opportunity.

Another part of this supervisor's work is that of encouraging the operators, and of keeping them from going stale.

"One of the stations recently was lagging behind on its grease sales," explained the supervisor. "While talking to the operator about this the trouble came to light.

"That morning this operator had eight one-gallon gasoline customers in a row. He tried

*Notice!*

Once again we are offering our customers something

NEW

Special High Quality
45—46—47
W. W. KEROSENE

Also
Naphthas and Gasolines
To Your Specifications

*Write us*

SUPERIOR OIL WORKS
Warren, Pa.



For

Over 21 Years

Oil men have been buying their fire insurance through us at a

MATERIAL SAVING IN COST

*We invite your inquiries*

National
Petroleum Mutual
Fire Insurance Co.

437 CHESTNUT ST.
PHILADELPHIA


salesmanship on one of these customers, asking about filling the tank for the week-end. The customer was willing to take the fill if the operator would charge the purchase until the next week.

"After listening to this it was evident that the operator was discouraged over his gasoline sales and could see no point in trying to sell a one-gallon customer a grease job.

"So it was necessary to smooth out the operator and help him over his mental condition before trying to increase his sales of grease."

With another major oil company the supervisor in the city also helps the operators solicit sales. The supervisor will go after the account, or he will tend the station while the operator goes after the business.

An executive with another major oil company points out that considerable diplomacy is necessary when the supervisor approaches a dealer station. The dealer or operator may know that the suggestion to keep the rest rooms cleaner, or the hint on merchandising will increase his profit, but he may resent interference in the management of his own business.

A training school and supervision have been combined by another major oil company. This company has both of its executives contacting its dealers frequently. In fact they know about 75 per cent of the dealers by their first name or their nickname. Then there is one assistant that has general contact with the trade, and there are three division supervisors each having a given number of bulk plants and dealer outlets to check.

The training school started with the district supervisors. The executives went over their duties with them, and told them what merchandising methods were desirable. Then the executives went to each bulk agent personally.

A personal report was made out for each bulk agent. This gave the details of his operations, and merchandising methods in his relation to the trade and the dealers. A copy of the report was left with the bulk plant agent.

Then the dealers were brought in by groups to a central point in their territory and given a dinner and sales meeting. Methods of approaching a customer, how to sell him, and what constituted service, and salesmanship were outlined.

This company believes these sales meetings of dealers could be held twice a year, possibly three times. Two dangers are seen, however, in the general sales meetings.

In any given group there is bound to be a few disgruntled men. They may think the company is against them, or they may nurse a secret grudge. These men may spread dissatisfaction among the others at the meetings and defeat the purpose of the gathering.

Another disadvantage is that some one with a few wild ideas may get on the floor, and before long the meeting is diverted from the subject. These are seen as disadvantages, however, that can be guarded against, and are not offered in any discouragement of sales meetings.

A direct mail campaign was used by another big company to help its dealers. The campaign lasted for several months last fall.

Each piece was emphasising some point on retail selling. There was one series of pieces on motor oil, another on greasing, another on cleanliness, and so on.

The messages came to the dealers on a four page folder, with action pictures to illustrate the point. The dealers were told how to carry out the suggestions and the benefits to be derived from good merchandising.

---

### Col. Burrell Completes Year In Russia

CLEVELAND.—Col. George A. Burrell, of the Burrell-Mase Engineering Co., Pittsburgh, Pa., is finishing one year's stay in Russia where he has been erecting gasoline plants for the Soviet Government.

His work includes the erection of three natural gasoline plants, five vapor recovery plants, one propane-butane plant and two stabilizing systems for pressure distillate.

The natural gasoline and vapor recovery gasoline to be produced will total about 300,000 gallons per day.

# ON THE LAZY BENCH

**Disturbing Element**

A little girl came home from her first visit to Sunday school in a very happy mood.

"Oh, mamma," she said, "it was so lovely. A lady told us about a gentleman named Adam and a lady named Eve who lived in a lovely garden; and oh, they were so happy there till the servant came."

*—Magnolia Oil News*
*Magnolia Petroleum Co.*

* * *

**Radio Education**

While five-year-old Mary, who is a radio fan, was saying her prayers, her dog came sniffing about her heels. "Please, God," she said, "stand by while I put Towser out."

*—The Gas Line*
*West Penn Oil Co.*

* * *

"They're a great bunch—that Key Family."

"Yes—Don, Monk, Turk and Whisk."

*—The Diamond*
*Mid-Continent Petroleum Corp.*

* * *

The pastor was surrounded by a group of small children. He was describing a touching picture, a painting, to them. He described it as follows: A cottage interior, a child dangerously ill, and the father and the physician bending over the bed, the mother seated at a table, her head bowed.

"What do you think the mother was doing?" asked the minister.

"Cross-word puzzles," answered a small girl promptly.

*—The Gas Line*
*West Penn Oil Co.*

* * *

Old gentleman (seeing the small colored boy was having some trouble getting away with the large melon he was trying to eat): "Too much melon, isn't it, Rastus?"

Small colored boy: "No, suh, boss, not enough nigger."

*—The Sohioan*
*Standard Oil of Ohio*

"Shure, Murphy," said Pat, "bettin's an awful risk."

"Shure, Pat," said Murphy, "but why?"

"Well, Castigan bet me a bob to a tanner that I couldn't swallow an egg without breaking the shell off it!"

"And did you lose the bet?"

"No, but if I jump about I'll break it and cut me inside wid the shell; and if I kape quiet it'll hatch and I'll have a white leghorn rooster to dale with."

*—The Booster*
*Standard Gasoline Co.*

* * *

**He Has a Following**

"Yes, my friends," said the theological lecturer, "some admire Moses, who instituted the old law; some Paul, who spread the new. But after all, which character in the Bible has had the largest following?"

As he paused, a voice from the back bench shouted, "Ananias."

*—The Diamond*
*Mid-Continent Petroleum Corp.*

* * *

**Another Free Ad**

"What makes the Tower of Pisa lean?"

"You have me—maybe it smokes Luckies."

*—The Gas Line*
*West Penn Oil Co.*

* * *

"Say, d'you know anything about that fellow Jones? He wants to borrow $25 from me."

"Know him? Why I know him as well as I do you. I wouldn't lend him a nickel."

*—The Diamond*
*Mid-Continent Petroleum Corp.*

* * *

Beneath the spreading chestnut tree
The smith works like the deuce,
For now he's selling gasoline,
Hot dogs and orange juice.

*—The Gas Line*
*West Penn Oil Co.*


# Good Service Creates Sales

## Back Up Your Service with *Good* Service Equipment

First, Good Service Equipment. Good Service follows. And then—Increased Sales to pleased customers.

So be sure you have good service equipment—CHAMPION Service Equipment. Send in the coupon for information on this *service-improving* line.

CHAMPION Compressor shown above is Two-Stage Model OE-38. This Model meets the demands of many air appliances efficiently and economically. 1½ h.p. Motor. Displacement 7.2 cu. ft. air per minute. 200 lbs. working pressure. 60 gallon tank.

## CHAMPION Air Scale Model "EL"

Inflates tires accurately with filtered and weighed air. Pressure range 20 to 130 lbs. No gauge necessary—whistle signal stops when tire is filled. Attractively finished. Draws trade and pleases users.

# CHAMPION
**Pneumatic Machinery Co.**
**8168 South Chicago Ave.**
**Chicago, Ill.**

CARE WILL SAVE YOUR CAR

Champion Pneumatic Machinery Co.
8168 S. Chicago Ave., Chicago, Ill.

Please send me complete information regarding CHAMPION ( ) Air Compressors, ( ) Service Towers, ( ) Ceiling Reels, ( ) Car Washers, ( ) Paint Spraying Equipment, ( ) Air Scales.

Name.....
Address.....
City.....
State.....

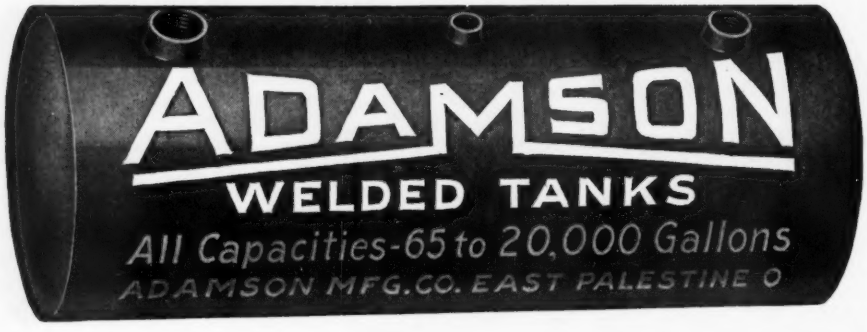
HALCO-BRAND
Be Assured-
of maximum quality, workmanship, fit and fair price, ask for Halco Brand Leather Leggings in your specifications for uniform equipment.
Halco Brand Leggings are made by one of the largest and oldest manufacturers in the country, from genuine solid leather to withstand rough wear of deliverymen and yet styled and finished to give the desired swanky appearance to station attendants.
Specify "Halco Brand"—it pays.
The Hagerstown
SHOE & LEGGING COMPANY
WELTS · STITCHDOWNS · MOCCANS · LEGGINGS
Hagerstown, Md. U.S.A.

TURN YOUR USED EQUIPMENT INTO CASH!

by advertising it in the classified section of *National Petroleum News.*

$4 an inch with border and display heading. Without border 10 cents a word, minimum charge $3.

***Send in your "ad" today***





## Oil Trademarks For Copyright

**THE following are trademark applications pertinent to our field pending in the United States Patent office which have been passed for publication and are in line for early registration unless opposition is filed promptly. For further information address National Trade-Mark Company, Barrister Building, Washington, D. C. trademark specialists.**

**As an additional service feature to its readers, this journal gladly offers to them an advance search free of charge on any mark they may contemplate adopting or registering. You may communicate with the Editor of this Department, or send your inquiry direct to the National Trade-Mark Company, stating that you are a reader of this journal.**

"UROYL." Ser. No. 308,116. Marquette Petroleum Products, Inc., Chicago, Ill. For lubricating oils and greases.

"EMPECO." Ser. No. 308,117. Marquette Petroleum Products, Inc., Chicago, Ill. For lubricating oils and greases.

"RAZUROLE." Ser. No. 308,110. William B. Haller, doing business as The Razurole Co., Philadelphia, Pa. For oil for preserving razor blades.

"DRAIN-O-KAN." Ser. No. 308,108. Dover Stamping & Manufacturing Company, Cambridge, Mass. For waste-oil cans.

"ALEMITE-DOT." Ser. No. 297,718. Alemite Corporation, Chicago, Ill. For apparatus for applying and dispensing lubricants—namely, grease guns, oil guns, grease-cups, etc.

"FLEXGAS." Ser. No. 308,980. The Derby Oil Company, Wichita, Kans. For motor fuel oils and gasoline.

"YOU'LL BE THANKFUL FOR A TANKFUL." Cornelius Fitzgerald, New York City. For gasoline.

PENN-CAS, and representation of a shield. Ser. No. 308,082. Pennant Oil and Grease Co., Inc., Los Angeles, Calif. For lubricating oils and greases.

AEROIL, and picture of an airplane. Ser. No. 303,858. Otis Oil Co., Inc., New York City. For lubricating oil.

SOLOIL, and fanciful representation of the sun and its rays. Ser. No. 307,523. Ackerman & Patterson, Inc., Boston, Mass. For oil for lubricating, softening, and waterproofing leather products, particularly soles.

MET-CUT. Ser. No. 309,167. E. F. Houghton & Co., Philadelphia, Pa. For cutting oils.

OLD HONESTY. Ser. No. 304,405. Gustafson Bros. Oil Co., Chicago, Ill. For lubricating oils and greases.

CLIX. Ser. No. 305,068. F. M. Boynton, doing business as Lancaster Products Co., Washington, D. C. For penetrating and lubricating oil.

TENNECO. Ser. No. 208,685. East Tennessee Gas & Oil Co., Inc., Greeneville, Tenn. For gasoline, kerosine, and lubricating oils.

BALLOON GREASE. Ser. No. 307,380. The Zip Abrasive Co., Cleveland, Ohio. For lubricating grease.

# Merchandising and Jobbing Ideas Marketers Are Practising

By E. L. Barringer
N. P. N. STAFF WRITER

THE Apex Oil Corp., Nashville, Tenn., builds all its service stations from a single blue print, and the dimensions are some multiple of 22. The office unit of a station is 22 by 22 feet. If gasoline pumps are to be only on one side the canopy will be 22 by 22 feet. If a service department is to be built with the station, or as an addition, it can go side of the office unit, and will be 22 by 22 or 22 by 44 feet.

The company has two reasons for using this plan. First, a change in traffic condition on streets passing a station, can be met easily. If a canopy becomes useless for gasoline pumps it can be equipped with overhead doors, or walled up, to serve as a service department. Second, a simple plan makes for easy construction in dealing with different contractors in various small towns.

* * *

**Gasoline Pump Starts Roadside Colony**

The gasoline pump may go down in history as the twentieth century method of beginning a country colony. Here is a picture of a modern roadside station that may be the counterpart of the old grist mill by the side of the river.

About 19 miles north of Roanoke, Va., Frank Stevens built these three buildings, one a gasoline station, one a grocery store, and the other a lunch room. The buildings are about 100 feet back from the main road, on the brow of a hill, with wide drives bordered with stones. The next development planned is tourist cabins.

* * *

**Jobbers are Jobbers In Macon, Ga.**

A jobber in the oil industry usually is thought of as a jobber-retailer, but in Macon, Ga., a city of 60,000 population, a strict difference is observed.

There are four local oil companies handling gasoline there. Only one of these is a jobber-retailer, and this company now rents its stations to operators. It is the Powers Oil Co.

The other three companies are either jobbers or retailers. The Stewart Oil Co. started out on a combination basis, but it has changed over to a strict retailing company with two stations. This company maintains its own bulk plant, but only for supplying these stations.

The straight jobbing companies are the Anderson Oil Co., and the Georgia Oil Co. Neither of these companies operate service stations. All their gasoline is delivered to dealers, or direct to consumers through commercial accounts.

* * *

**This Jobber Handles Only Lubricants**

One of the old line oil jobbing businesses is that of C. H. Johnson, operating the Johnson Lubricating Co., Jackson, Miss. He has been in business for nine years.

All lubricants are received in drums and cans. The warehouse and office is space rented from a local storage company. Mr. Johnson believes that this method of receiving goods is more profitable for him as it leaves all of his time for selling and he does not have to supervise a bulk storage plant.

Mr. Johnson has never handled gasoline or other light oils. The only retailing in small lots has been recently in selling oils to customers who buy their gasoline at stations where his line is not sold. These sales are in five-gallon lots, and are made mainly to traveling men.

In addition to Mr. Johnson, there are two salesmen with the company. Deliveries within a radius of 10 miles of Jackson are made in the company's truck. On rush orders, when the company truck is on the road, Mr. Johnson sends out oils in a truck of the storage company.

The Johnson Lubricating Co. distributes Quaker State oils in central Mississippi, and has its own line of Johnson brand oils and greases.

**This modern roadside service station and country store is near Roanoke, Va. A fence around a station helps sell its goods**

# A GLANCE tells you the valve ratings *for steam–oil–water–gas*

WITH Jenkins Iron Body Gate Valves, there is no need to look in a catalog to see the services and pressures for which the valve is recommended. A glance at the valve itself tells the whole story.

Every Jenkins Iron Body Gate Valve has its ratings for steam, oil, water and gas cast plainly on the valve body above the "Diamond" trade mark. On the body of every valve, the brass plate certifies the factory test the valve has passed.

Jenkins Iron Body Gates are tested, identified and certified valves you can count on for long, economical performance. They are obtainable promptly, screwed or flanged, through your supply house.

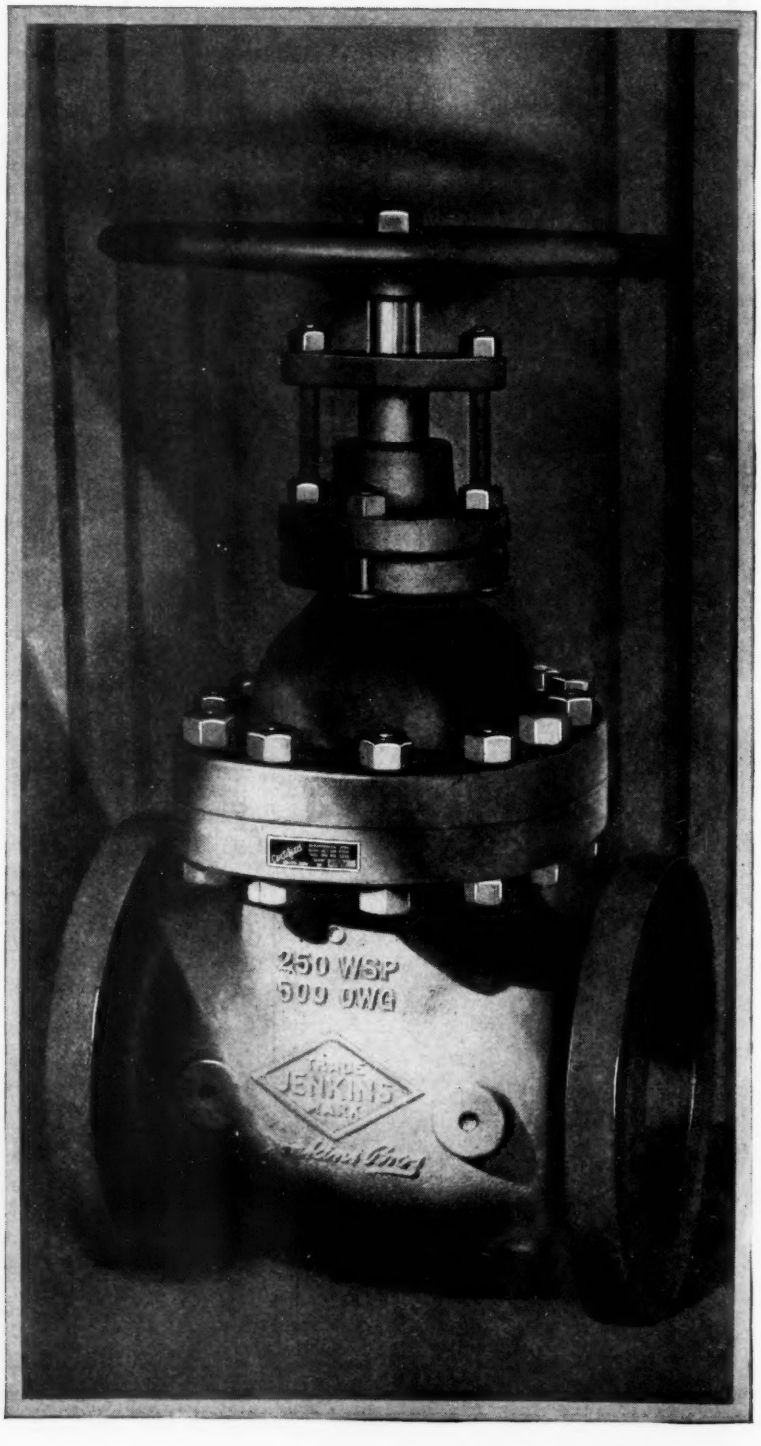
**JENKINS IRON BODY GATE VALVES**
*SOLID WEDGE . . . BRONZE MOUNTED*

| Inside Screw, Stationary Spindle; Outside Screw & Yoke, Rising Spindle (Screwed or Flanged) | Rated Working Pressure, Pounds | | | |
|---|---|---|---|---|
| | STEAM | OIL | WATER | GAS |
| Standard | 125 | 200 | 200 | 200 |
| Medium | 175 | 300 | 300 | 300 |
| Extra Heavy | 250 | 500 | 500 | 500 |

**JENKINS BROS.**

80 White Street, New York, N.Y. — 524 Atlantic Avenue, Boston, Mass. — 133 No. Seventh Street, Philadelphia, Pa.
646 Wash. Blvd., Chicago, Ill. — 1121 No. San Jacinto, Houston, Texas
JENKINS BROS., Limited, Montreal, Canada; London, England
Factories: Bridgeport, Conn.; Elizabeth, N. J.; Montreal, Canada.

* *Illustrated above is facsimile of certified brass plate carried by Fig. 203, Jenkins Extra Heavy Iron Body Gate Valve, stationary spindle, illustrated at right* ⟶




Jenkins
VALVES
Since 1864

# Crude Production by Fields

*By Telegraph—Daily average gross output, by fields in U. S., for week ending with dates below as compiled by A. P. I.*

| PRODUCTION SUMMARY | March 28 | March 21 |
|---|---|---|
| Production east of Rockies | 1,744,950 | 1,736,150 |
| Increase | | 8,800 |
| Total production in U. S. | 2,275,350 | 2,268,050 |
| Increase | | 7,300 |
| Crude oil imports | 87,000 | 146,570 |
| Decrease | | 59,570 |
| Total new crude supply | 2,362,350 | 2,414,620 |
| Decrease | | 52,270 |

| OKLAHOMA | Mar. 28 | Mar. 21 |
|---|---|---|
| Allen Dome | 6,850 | 22,500 |
| Asher | 700 | 700 |
| Asher, West | 8,350 | 7,650 |
| Blackwell | 2,950 | 2,950 |
| Bowlegs | 25,850 | 6,400 |
| Braman | 1,950 | 1,950 |
| Bristow-Slick | 12,600 | 12,750 |
| Burbank | 13,000 | 13,300 |
| Carr City | 14,900 | 13,850 |
| Cromwell | 4,850 | 4,850 |
| Cushing | 12,650 | 12,650 |
| Davenport | 950 | 950 |
| Duncan Dist. | 6,850 | 7,000 |
| Earlsboro | 15,300 | 34,300 |
| Earlsboro, E. | 27,000 | 10,750 |
| Earlsboro, So. | 7,050 | 6,450 |
| Fox | 1,050 | 1,050 |
| Garber | 3,950 | 3,950 |
| Graham | 3,000 | 3,000 |
| Healdton | 10,600 | 10,600 |
| Hewitt | 6,150 | 6,100 |
| Hubbard | 900 | 950 |
| Knoawa | 13,000 | 13,650 |
| Little River | 42,800 | 12,850 |
| Little River, E. | 11,450 | 6,800 |
| Logan Co. | 4,000 | 4,000 |
| Maud | 2,300 | 4,650 |
| Mission | 15,400 | 2,100 |
| Oklahoma City | 120,800 | 149,200 |
| Okmulgee, No. | 9,200 | 9,150 |
| Okmulgee, So. | 5,100 | 5,250 |
| Osage (Outside Burbank) | 22,500 | 22,700 |
| Papoose | 2,000 | 2,000 |
| Pearson | 600 | 500 |
| Sasakwa | 4,350 | 2,200 |
| St. Louis | 17,150 | 38,050 |
| Scholem-Alechem | 12,850 | 13,100 |
| Searight | 4,800 | 7,650 |
| Seminole | 10,300 | 26,500 |
| Seminole, E. | 1,550 | 3,050 |
| Thomas | 550 | 850 |
| Tonkawa | 5,150 | 5,200 |
| Wewoka | 8,700 | 9,500 |
| Yale-Jennings | 5,500 | 6,200 |
| Others | 45,300 | 42,300 |
| Total, Okla. | 552,800 | 572,100 |
| Decrease | | 19,300 |

| KANSAS | | |
|---|---|---|
| Augusta-Fox Bush | 2,850 | 3,000 |
| Churchill | 3,250 | 3,550 |
| El Dorado-Towanda | 12,200 | 12,900 |
| Florence-Covert | 700 | 650 |
| Greenwood Co. | 16,300 | 16,800 |
| Oxford | 2,250 | 2,300 |
| Peabody-Elbing | 1,550 | 1,700 |
| Rainbow Bend | 1,400 | 1,450 |
| Russell | 3,000 | 3,250 |
| Sedgwick Co. | 18,500 | 18,000 |
| Voshell | 18,300 | 19,200 |
| Others | 29,000 | 27,000 |
| Total, Kans. | 109,300 | 109,800 |
| Decrease | | 500 |

| NORTH LOUISIANA | | |
|---|---|---|
| Caddo, light | 7,700 | 7,850 |
| Caddo, heavy | 2,750 | 2,750 |
| Cotton Valley | 1,800 | 1,800 |
| De Soto and Red River | 2,700 | 2,700 |
| Haynesville | 5,700 | 5,700 |
| Holly | 600 | 650 |
| Homer | 3,350 | 3,350 |
| Sarepta | | |
| Carterville | 1,400 | 1,450 |
| Urania | 4,600 | 4,600 |
| Zwolle | 7,650 | 7,600 |
| Others | 1,450 | 1,500 |
| Total, N. La. | 39,700 | 39,950 |
| Decrease | | 250 |

| ARKANSAS | | |
|---|---|---|
| Champagnolle | 3,100 | 3,100 |
| El Dorado | 3,800 | 3,800 |
| Lisbon | 750 | 750 |
| Nevada | 1,000 | 1,000 |
| Smackover, light | 4,200 | 4,300 |
| Smackover, heavy | 31,850 | 32,100 |
| Stephens | 850 | 850 |
| Others | 1,150 | 1,400 |
| Total, Ark. | 46,700 | 47,300 |
| Decrease | | 600 |

| ROCKY MOUNTAIN | | |
|---|---|---|
| **Wyoming** | | |
| Big Muddy | 2,100 | 1,950 |
| Elk Basin | 700 | 700 |
| Grass Creek | 2,200 | 2,050 |
| Labarge | 1,500 | 1,600 |
| Lance Creek | 250 | 200 |
| Lost Soldier | 2,150 | 3,200 |
| Oregon Basin | 1,300 | 1,500 |
| Rock River | 2,000 | 2,000 |
| Salt Creek | 24,850 | 27,500 |
| Others | 3,750 | 3,250 |
| Total, Wyo. | 40,800 | 43,950 |
| Decrease | | 3,150 |
| **Montana** | | |
| Cat Creek | 1,050 | 1,100 |
| Pondera | 1,700 | 1,900 |
| Sunburst | 4,450 | 4,250 |
| Others | 1,700 | 1,400 |
| Total, Mont. | 8,900 | 8,650 |
| Increase | | 250 |
| **Colorado** | | |
| Florence | 450 | 400 |
| Fort Collins | 950 | 1,050 |
| Moffat (Craig) | 1,000 | 1,000 |
| Others | 1,800 | 1,800 |
| Total, Colo. | 4,200 | 4,250 |
| Decrease | | 50 |
| **New Mexico** | | |
| Artesia | 550 | 600 |
| Bal. Eddy Co. | 200 | 200 |
| Hobbs High | 31,600 | 32,100 |
| Bal. Lea Co. | 7,000 | 6,300 |
| Hogback | 450 | 400 |
| Rattlesnake | 1,100 | 1,150 |
| Table Mesa | 100 | 100 |
| Total, N. M. | 41,000 | 40,850 |
| Increase | | 1,100 |
| Total, Rocky Mountain | 94,900 | 97,700 |
| Decrease | | 2,800 |

| TEXAS (OUTSIDE GULF COAST) | Mar. 28 | Mar. 21 |
|---|---|---|
| **Panhandle District** | | |
| Carson Co. | 3,850 | 3,900 |
| Gray Co. | 42,200 | 39,600 |
| Hutchinson Co. | 8,850 | 9,400 |
| Wheeler Co. | 350 | 500 |
| Others | 300 | 300 |
| Total, Panhandle Tex. | 55,550 | 53,700 |
| Increase | | 1,850 |
| **North Texas** | | |
| Archer Co. | 11,750 | 11,800 |
| Burkburnett | 7,150 | 7,200 |
| Electra | 8,900 | 8,900 |
| Iowa Park and K. M. A. | 3,700 | 3,700 |
| Montague-Cooke | 5,300 | 5,650 |
| Wilbarger | 10,500 | 10,500 |
| Young Co., No. | 9,150 | 9,200 |
| Others | 1,350 | 1,350 |
| Total, N. Tex. | 57,800 | 58,300 |
| Decrease | | 500 |
| **West Central Texas** | | |
| Brown Co. | 4,100 | 4,100 |
| Callahan Co. | 2,000 | 2,000 |
| Coleman Co. | 1,100 | 1,100 |
| Eastland-Desdemona | 4,000 | 4,000 |
| Jack Co. | 950 | 900 |
| Palo Pinto Co. | 400 | 400 |
| Shackleford Co. | 4,000 | 4,000 |
| Stephens Co. | 4,600 | 4,600 |
| Throckmorton Co. | 400 | 400 |
| Young Co., So. | 2,600 | 2,600 |
| Others | 1,200 | 1,200 |
| Total, West Cen. Texas | 25,350 | 25,300 |
| Increase | | 50 |
| **West Texas** | | |
| Crane and Upton Cos. | 24,500 | 24,400 |
| Crockett Co. | 1,800 | 1,800 |
| Ector Co. | 6,300 | 7,300 |
| Howard Co. | 27,050 | 22,500 |
| Jones Co. | 1,200 | 1,200 |
| Mitchell and Scurry Cos. | 1,850 | 2,000 |
| Reagan Co. | 29,700 | 26,450 |
| Winkler Co. | 46,700 | 47,800 |
| Yates | 93,000 | 89,850 |
| Bal. Pecos Co. | 4,200 | 4,100 |
| Others | 7,200 | 7,250 |
| Total, West Texas | 243,500 | 234,650 |
| Increase | | 8,850 |
| **East Central Texas** | | |
| Boggy Creek | 2,300 | 2,350 |
| Corsicana-Powell | 4,850 | 4,800 |
| Currie | 300 | 300 |
| Mexia | 3,600 | 3,600 |
| Nigger Creek | 150 | 150 |
| Richland | 100 | 100 |
| Rusk Co.: | | |
| Joiner field | 47,850 | 40,350 |
| Kilgore | 56,500 | 36,850 |
| Gregg Co., Longview | 17,750 | 14,350 |
| Van Zandt | 35,050 | 35,500 |
| Wortham | 500 | 500 |
| Others | 50 | 50 |
| Total, East Cent. Texas | 169,000 | 138,900 |
| Increase | | 30,100 |
| **Southwest Texas** | | |
| Chapman Abbott | 4,700 | 4,800 |
| Dale | 250 | 250 |
| Darst Creek | 18,200 | 28,500 |
| Laredo Dist. | 14,600 | 14,500 |
| Luling | 9,400 | 9,400 |
| Lytton Springs | 750 | 700 |
| Salt Flat | 13,000 | 14,650 |
| Somerset | 1,300 | 1,300 |
| Others | 550 | 550 |
| Total, S. W. Texas | 62,750 | 74,650 |
| Decrease | | 11,900 |
| Total, Texas (Outside Gulf Coast) | 613,950 | 585,500 |
| Increase | | 28,450 |

| GULF COAST | Mar. 28 | Mar. 21 |
|---|---|---|
| **Coastal Texas** | | |
| Barbers Hill | 21,200 | 18,800 |
| Batson | 1,000 | 1,000 |
| Big Creek | 3,300 | 2,650 |
| Blue Ridge | 1,100 | 1,150 |
| Boling | 800 | 750 |
| Damon Mound | 600 | 700 |
| Esperson | 2,500 | 2,550 |
| Fannett | 500 | 500 |
| Goose Creek | 4,300 | 4,400 |
| Hankamar | 2,250 | 2,300 |
| Hull | 6,100 | 6,100 |
| Humble | 9,950 | 9,150 |
| Moss Bluff | 750 | 300 |
| North Dayton | 600 | 600 |
| Orange Co. | 1,850 | 1,900 |
| Orchard | 1,700 | 1,700 |
| Pettus | 7,100 | 7,100 |
| Pierce Junct. | 10,050 | 10,100 |
| Port Neches | 1,450 | 1,450 |
| Raccoon Bend | 9,000 | 9,400 |
| Refugio Co. | 29,100 | 28,600 |
| Saratoga | 900 | 950 |
| Somerville | 2,350 | 2,100 |
| Sour Lake | 2,050 | 2,050 |
| So. Liberty | 2,300 | 2,400 |
| Spindletop | 10,350 | 10,800 |
| Sugarland | 11,800 | 11,800 |
| West Columbia | 4,350 | 4,300 |
| Others | 1,950 | 1,900 |
| Total, Coastal Texas | 151,250 | 147,500 |
| Increase | | 3,750 |
| **Coastal Louisiana** | | |
| Edgerly | 500 | 600 |
| Evangeline | 800 | 700 |
| Hackberry, E. | 2,050 | 2,150 |
| Hackberry, Old | 800 | 800 |
| Lake Barre | 2,850 | 4,250 |
| Lockport | 5,200 | 4,700 |
| Port Barre | 1,750 | 1,700 |
| Sulphur Dome | 1,700 | 1,500 |
| Vinton | 6,200 | 6,000 |
| White Castle | 1,000 | 1,000 |
| Others | 3,250 | 3,350 |
| Total, Coastal La. | 26,100 | 26,750 |
| Decrease | | 650 |
| Total, Gulf Coast | 177,350 | 174,250 |
| Increase | | 3,100 |

| CALIFORNIA | | |
|---|---|---|
| Dominguez | 12,300 | 12,000 |
| Elwood-Goleta | 35,000 | 38,500 |
| Huntington Beach | 21,800 | 21,600 |
| Inglewood | 15,200 | 15,200 |
| Kettleman Hills | 25,000 | 25,000 |
| Long Beach | 89,600 | 90,600 |
| Midway-Sunset | 53,000 | 52,300 |
| Playa del Rey | 29,800 | 30,300 |
| Santa Fe Spgs. | 74,000 | 71,500 |
| Seal Beach | 15,700 | 16,400 |
| Ventura Ave. | 45,000 | 45,000 |
| Others | 114,000 | 113,500 |
| Total, Calif. | 530,400 | 531,900 |
| Decrease | | 1,500 |

| EASTERN | | |
|---|---|---|
| (Not including Mich.) | 101,700 | 101,000 |
| Increase | | 700 |
| **MICHIGAN** | | |
| Mt. Pleasant | 6,650 | 6,650 |
| Muskegon | 1,750 | 1,750 |
| Saginaw | 150 | 150 |
| Total, Mich. | 8,550 | 8,550 |

# Compilation Of Mid-Continent Refinery Operations

*All Rights Reserved to the National Petroleum Publishing Co.*

## Mid-Continent Refinery Operations, Week Ended March 27 (By Telegraph)

| | Kansas | Oklahoma | North & Cent. Texas | West Texas | North La.-Ark. | Total Week Ended March 27 |
|---|---|---|---|---|---|---|
| Plants Reporting.... | 10 | 23 | 23 | 10 | 10 | 76 |
| Da. Av. Cap. (Bbls.).. | 94,000 | 162,500 | 107,400 | 71,500 | 60,700 | 496,100 |
| Da. Cracking Capacity | 53,200 | 64,600 | 23,100 | 26,250 | 31,700 | 198,850 |
| Da. Av. Crude Runs.. | 60,865 — 1.4 | 94,079 + 2.6 | 57,144 — 10.4 | 32,078 — 6.7 | 41,494 — 4.1 | 285,660 — 3.2 |
| Da. Av. Other Oil.... | 6,194 + 13.8 | 7,381 +198.6 | 3,292 + 13.3 | 829 .... | 17,355 — 1.7 | 35,051 + 23.1 |
| **GASOLINE—Gallons** | | | | | | |
| Stocks, March 20.... | 29,536,000 | 48,330,000 | 36,903,000 | 12,448,000 | 6,589,000 | 133,806,000 |
| Prod. 3-20 to 3-27.... | 11,996,000 — 0.6 | 16,394,000 — 0.2 | 8,593,000 — 11.0 | 3,110,000 + 10.1 | 6,040,000 + 6.7 | 46,133,000 — 1.1 |
| Ship. 3-20 to 3-27.... | 11,793,000 + 0.5 | 15,668,000 + 20.5 | 5,844,000 — 47.9 | 4,826,000 + 55.8 | 5,534,000 — 5.5 | 43,665,000 — 2.8 |
| Stocks, March 27.... | 29,739,000 + 0.7 | 49,056,000 + 1.5 | *33,352,000 — 9.6 | 10,732,000 — 13.8 | 7,095,000 + 7.7 | *129,974,000 —2.9 |
| Ratio Sales to Prod... | 98.3% | 95.6% | 68.0% | 155.2% | 91.6% | 94.7% |
| **KEROSINE—Gallons** | | | | | | |
| Stocks, March 20.... | 8,379,000 | 16,276,000 | 2,511,000 | 2,000 | 174,000 | 27,342,000 |
| Prod. 3-20 to 3-27.... | 2,076,000 — 0.2 | 2,254,000 + 6.8 | 1,154,000 — 10.1 | 53,000 .... | 330,000 + 11.5 | 5,867,000 + 1.7 |
| Ship. 3-20 to 3-27.... | 2,172,000 — 18.2 | 2,446,000 + 40.7 | 1,333,000 — 5.1 | 8,000 + 33.3 | 313,000 — 6.8 | 6,272,000 + 2.2 |
| Stocks, March 27.... | 8,283,000 — 1.1 | 16,084,000 — 1.2 | 2,332,000 — 7.1 | 47,000 +235.0 | 191,000 + 9.8 | 26,937,000 — 1.5 |
| Ratio Sales to Prod... | 104.6% | 108.5% | 115.5% | 15.1% | 94.8% | 106.9% |
| **STOVE DISTILLATE—Gallons** | | | | | | |
| Stocks, March 20.... | 3,323,000 | 4,796,000 | 577,000 | 79,000 | 24,000 | 8,799,000 |
| Prod. 3-20 to 3-27.... | 456,000 — 17.8 | 762,000 + 39.8 | 379,000 + 8.0 | 41,000 + 10.8 | 30,000 — 62.5 | 1,668,000 + 6.4 |
| Ship. 3-20 to 3-27.... | 561,000 — 11.4 | 904,000 + 91.9 | 344,000 — 33.6 | 30,000 — 54.5 | 32,000 — 55.6 | 1,871,000 + 6.3 |
| Stocks, March 27.... | 3,218,000 — 3.2 | 4,654,000 — 3.0 | 612,000 + 6.1 | 90,000 + 13.9 | 22,000 — 8.3 | 8,596,000 — 2.3 |
| Ratio Sales to Prod... | 123.0% | 118.6% | 90.8% | 73.2% | 106.7% | 112.2% |
| **GAS OIL—Gallons** | | | | | | |
| Stocks, March 20.... | 3,198,000 | 26,833,000 | 2,526,000 | 4,167,000 | 5,134,000 | 41,858,000 |
| Prod. 3-20 to 3-27.... | 852,000 + 39.2 | 1,278,000 +114.4 | 508,000 — 30.1 | 528,000 .... | 2,406,000 + 9.7 | 5,572,000 + 19.6 |
| Ship. 3-20 to 3-27.... | 734,000 + 25.7 | 556,000 — 62.5 | ..... .... | 424,000 — 50.6 | 1,953,000 — 18.8 | 3,667,000 — 41.0 |
| Stocks, March 27.... | 3,316,000 + 3.7 | 27,555,000 + 2.7 | 3,034,000 + 20.1 | 4,271,000 + 2.5 | 5,587,000 + 8.8 | 43,763,000 + 4.6 |
| Ratio Sales to Prod... | 86.2% | 43.5% | ..... .... | 80.3% | 81.2% | 65.8% |
| **FUEL OIL—Gallons** | | | | | | |
| Stocks, March 20.... | 9,409,000 | 50,261,000 | 61,439,000 | 12,919,000 | 22,283,000 | 156,311,000 |
| Prod. 3-20 to 3-27.... | 4,845,000 + 2.1 | 5,511,000 + 7.9 | 6,337,000 + 3.2 | 4,501,000 — 11.2 | 4,709,000 — 4.0 | 25,903,000 — 0.3 |
| Ship. 3-20 to 3-27.... | 4,219,000 — 1.6 | 5,641,000 + 28.5 | 6,624,000 — 3.3 | 4,494,000 + 12.1 | 4,538,000 + 4.2 | 25,516,000 + 6.8 |
| Stocks, March 27.... | 10,035,000 + 6.7 | 50,131,000 — 0.3 | 61,152,000 — 0.5 | 12,926,000 + 0.05 | 22,454,000 + 0.8 | 156,698,000 + 0.2 |
| Ratio Sales to Prod... | 87.1% | 102.4% | 104.5% | 99.8% | 96.4% | 98.5% |

## Gasoline Produced by Various Methods, Week Ended March 27

| | Kansas | % of Total | Oklahoma | % of Total | North & Cent. Texas | % of Total | West Texas | % of Total | Louisiana-Arkansas | % of Total | Total | % of Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Straight Run..... | 6,564,000 | 54.7 | 10,802,000 | 65.9 | 5,689,000 | 66.2 | 2,942,000 | 94.6 | 2,340,000 | 38.7 | 28,337,000 | 61.4 |
| Cracked..... | 4,579,000 | 38.2 | 4,612,000 | 28.1 | 2,015,000 | 23.4 | 48,000 | 1.5 | 2,583,000 | 42.8 | 13,837,000 | 30.0 |
| Natural..... | 853,000 | 7.1 | 980,000 | 6.0 | 889,000 | 10.4 | 120,000 | 3.9 | 1,117,000 | 18.5 | 3,959,000 | 8.6 |
| Total..... | 11,996,000 | | 16,394,000 | | 8,593,000 | | 3,110,000 | | 60,040,000 | | 46,133,000 | |

*6,300,000 gallons transferred to gasoline pipeline storage and terminal working stocks.
+ or — columns are % change over previous week.

## Mid-Continent Refiners Reduce Crude Runs

Staff Special—By Telegraph
TULSA, March 30

CRUDE runs at 76 Mid-Continent refineries were reduced 9226 barrels daily average in the week ended March 27 according to reports gathered by NATIONAL PETROLEUM NEWS. Charges of partly refined oils to stills were increased 6580 barrels per day but gasoline output was reduced 500,000 gallons.

Shipments of gasoline dropped 1,240,000 gallons. The North Texas and Louisiana-Arkansas districts suffered most from lower demand. Other groups reported increases in shipments. Gasoline stocks were reduced only in West Texas.

The report this week shows a transfer of 6,300,000 gallons of gasoline from refinery storage to pipeline and terminal working stocks. This transfer should not be considered as shipments.

Kerosine stocks were reduced slightly with both production and shipments

## Summary for the Month

Production and shipments, all reporting refineries, for four weeks ended March 27. Change in stocks figures from Feb. 27.

**GASOLINE**

| | Gallons |
|---|---|
| Production | 172,783,000 |
| Shipments | 178,475,000 |
| Net change in stocks | —5,692,000 |
| Ratio sales to production | 103.3% |

**KEROSINE**

| | Gallons |
|---|---|
| Production | 22,386,000 |
| Shipments | 23,392,000 |
| Net change in stocks | —1,006,000 |
| Ratio sales to production | 104.5% |

**STOVE DISTILLATE**

| | Gallons |
|---|---|
| Production | 6,716,000 |
| Shipments | 7,574,000 |
| Net change in stocks | —858,000 |
| Ratio sales to production | 112.8% |

**GAS OIL**

| | Gallons |
|---|---|
| Production | 21,702,000 |
| Shipments | 22,769,000 |
| Net change in stocks | —1,067,000 |
| Ratio sales to production | 104.9% |

**FUEL OIL**

| | Gallons |
|---|---|
| Production | 96,806,000 |
| Shipments | 103,047,000 |
| Net change in stocks | —6,241,000 |
| Ratio sales to production | 106.4% |

higher. Distillate stocks also were cut. Gas Oil and Fuel Oil Stocks increased.

The total number of reporting plants has been changed with this week's report. This is due to the elimination of several plants which have been shut down for a year or more. Capacities have been revised in line with recent building activity.

## Pyrolysis and Destructive Hydrogenation

(*Continued from Page* 65)

stacles. The use of pipe stills with pipes of small diameter will minimize the danger of explosion to a minimum and will warrant the best possible tightness of the apparatus.

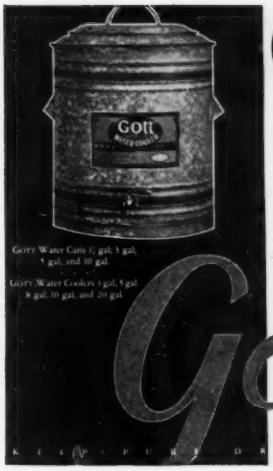
It seems to us to be more important to provide this plant with cheap hydrogen and this problem requires serious consideration. As the most suitable source of hydrogen supply we should like to draw attention to natural gases which are composed mainly of methane, the contents of hydrogen in the latter amounting to 25 per cent.

## To Test Fuel Systems For Vapor Lock

WASHINGTON, March 30.—The automotive power plant section of the Bureau of Standards will run tests this summer on about 30 automobile engines, the makers of which have changed the design of their fuel feed lines with a view to avoiding vapor lock. The tests will be chiefly to determine the temperatures developed in feed lines under conditions likely to prevail in actual road operation of the ordinary passenger automobile and the public motor bus.

Earlier tests have determined the temperatures at which high volatility gasolines will boil. Now the task is to determine the ability of the new feed lines to use such gasolines without causing the formation of locks. The tests will be run on a co-operative basis by the bureau, some gasoline makers and the automobile manufacturers. The temperature tests were made on roads in West Virginia.

An effort will be made this summer to find suitable roads, with relatively light travel nearer Washington than the roads that had to be selected in West Virginia for the determination of the boiling points. Roads with a fairly regular grade about six miles long are being sought as being best suited for the purpose.


Gott Water Cans
Gott Water Coolers

Gott Water Cans & Coolers

When you have a GOTT Water Cooler handy, you will always be assured of a fresh supply of pure drinking water kept delightfully cool. *Order one from your supply store.. now!*

Gotkool

H. P. GOTT MFG. CO. • Winfield, Kansas

KEEP PURE DRINKING WATER ALWAYS HANDY

**Carbondale Refrigeration for Refiners**

CARMACO

*Send for a Copy of our Wax Plant Bulletin*

Design of Complete Wax Plants—Absorption and Compression Refrigerating Machines—Wax Distillate Chilling Machines—High Pressure Filter Presses—Paraffine Wax Sweaters—Heat Exchangers and other Refinery Equipment.

CARBONDALE MACHINE COMPANY, CARBONDALE, PA.

*SALES OFFICES*

New York Los Angeles Buffalo Chicago Pittsburgh Tulsa Kansas City Philadelphia Boston

**PETROLEUM PRODUCTS**
**From All Fields**

*Carloads, Tank Cars, and Cargoes*
*For Domestic or Export*

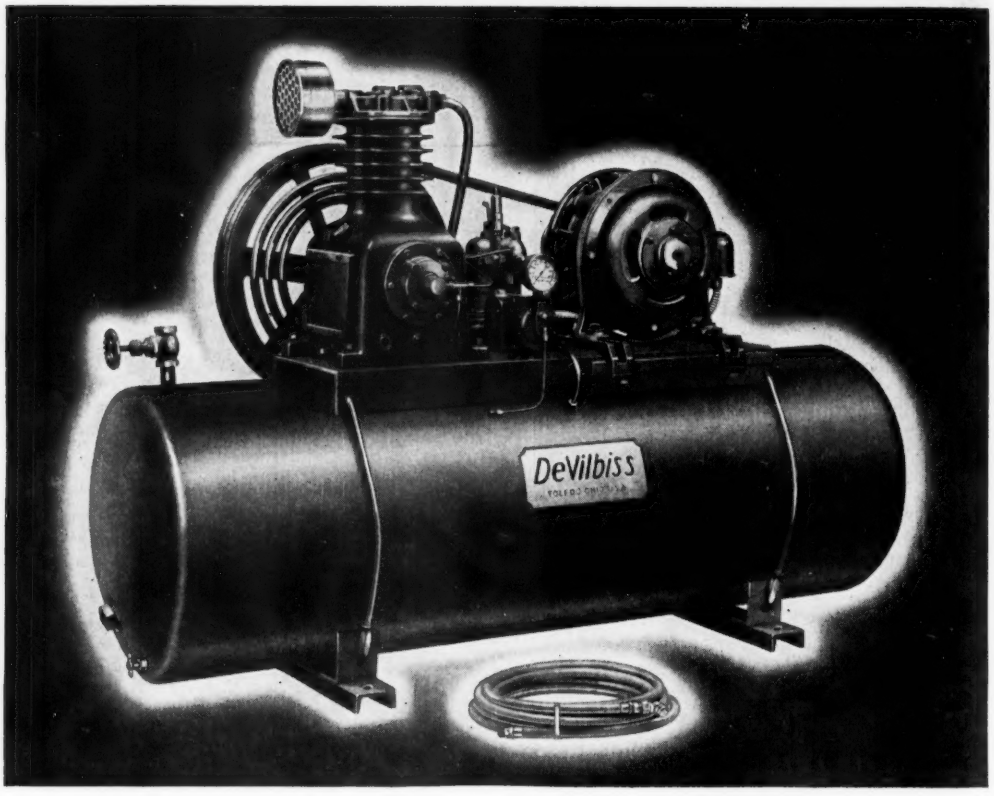
GASOLINE KEROSENE NAPHTHA
CRUDE OIL FUEL OIL GAS OIL FURNACE OIL
CYLINDER STOCKS
UNFILTERED AND FILTERED
BRIGHT STOCKS
COLD SETTLED AND CENTRIFUGED
PALE—RED OILS
WAX—PETROLATUM
TECHNICAL WHITE OILS
WHITE MINERAL OILS

*For 35 years of reliability, service and integrity—this Company enjoys an International Reputation*

**JAMES B. BERRY SONS' CO., INC.**
*General Office*—Oil City, Pa.

*District Offices at*
**New York, Philadelphia, Boston, Chicago**
**London—Hamburg**

*Cable Address—JASBER Oil City* *All Codes*




# HERE are the Air Compressors you have wanted

**NEW DESIGNS and NEW EXCLUSIVE FEATURES BRING NEW EFFICIENCY**

The higher efficiency of the new DeVilbiss Air Compressors gives you compressed air at lower cost than has ever before been possible. In these days of intense competition and more and more *free* service, it becomes vitally necessary for garages and service stations to choose equipment which is economical to operate.

Dependability, too, is an outstanding feature of these new DeVilbiss Air Compressors. Failure of your compressed air supply inconveniences your customers. You can guard against such trade-losing accidents by installing DeVilbiss Air Compressing Equipment. It is reliable and trouble-free.

There is a type and size of DeVilbiss Air Compressing Equipment for every demand or requirement from the small garage and tire shop to the largest modern super-service station. Send for the new catalog giving full description and specifications of all models.

THE DEVILBISS COMPANY . TOLEDO . OHIO

Sales and Service Branches, New York; Philadelphia; Cleveland; Detroit; Indianapolis; Chicago; St. Louis; Los Angeles; San Francisco; Windsor, Ontario. Distributors or direct sales and service representatives available everywhere.

DeVilbiss

# Refinery - Tank Wagon Markets

## Prices Continue Downward in Seaboard Areas; Inland Markets Generally Steady

CLEVELAND, March 30

PRICES sought lower levels and virtually all seaboard marketing areas the last week in March. Inland markets were relatively steady. Buying was along conservative lines in virtually all sections of the country.

Perhaps the feature of the week marketwise was the placing of East Texas crude on an equal price level with the other better Mid-Continent crudes by Magnolia Petroleum Co. This gave rise to considerable favorable comment from the middle western trade. Opinion generally was that on an equal price basis, East Texas would not be the disturbing factor in refined oil markets that it might be otherwise.

Volume of gasoline buying in the Mid-Continent increased slightly, according to general trade reports. Inclement weather had a tendency to slow up shipments temporarily but buyers were said to be a little more liberal in purchasing.

The general market for U. S. Motor gasoline, Group 3 basis, remained at a minimum of 3.50 cents. Large lots of this commodity for deferred shipment, and in a few instances small distress lots for immediate shipment, sold for less.

Tank car prices for U. S. Motor gasoline were reduced 0.5 to 1 cent a gallon by a majority of traders in the eastern seaboard markets. Kerosine prices also were lower at New York. Retail prices for heating oils were cut substantially in the New York and New England districts but tank car prices remained unchanged.

Pacific Coast tank car and cargo prices suffered further setbacks, recessions taking in all commodities in the tank car market and the light oils in the bulk market.

Practically all oils were quoted lower in the Gulf Coast market. The inquiry from Atlantic seaboard buyers was fairly active; foreign buying remained at a standstill.

---

## Gasoline Generally Steady in Chicago Market

Staff Special

CHICAGO, March 28

FEW changes were noted in the Chicago market during the week ended March 28, either in prices or demand for commodities. Gasoline buying was fairly steady, according to most traders, although orders generally were for only one or two cars. Jobbers still were uncertain as to the immediate future of the market and were buying mostly on a hand-to-mouth basis.

Considerable interest was shown in gasoline for shipment over April. Opinion was divided as to what the market would do. However, the majority of Chicago sellers thought there was more chance of an advance than a decline and quoted prices accordingly. Some sales of U. S. Motor for April shipment were made at the low of the current market, but marketers generally said they were unwilling to sell "short."

The trade was keeping a close watch on the East Texas crude situation as it was felt this might have some effect on the tank car market in the middle west. In the past, the Indiana territory has been a dumping ground for considerable "distress" gasoline and offers a good market for most of the Mid-Continent and Texas refiners. It was thought that if the East Texas field was allowed to continue without proration there would probably be considerable cheap material offered in this territory.

The general tank car gasoline market remained on a steady basis over the week, with practically no change noted in prices. By far the bulk of sales of U. S. Motor were reported at 3.50 cents and up. Carlot marketers said there were a few spots where they could buy Motor at 3.25 cents and they in turn had made some sales at 3.375 cents. A few sales of U. S. Motor were reported made direct to jobbers at 3.375 cents. As is usually the case, jobbers in Detroit, Chicago and some parts of Indiana were able to buy some gasoline at under the general price range, although it was not as freely offered as it had been.

Many sellers reported a comparatively good demand for the 60-62, 437 and 400 e.p. gasolines. Prices of these grades are so close to those for U. S. Motor that they offer a better bargain to the buyer.

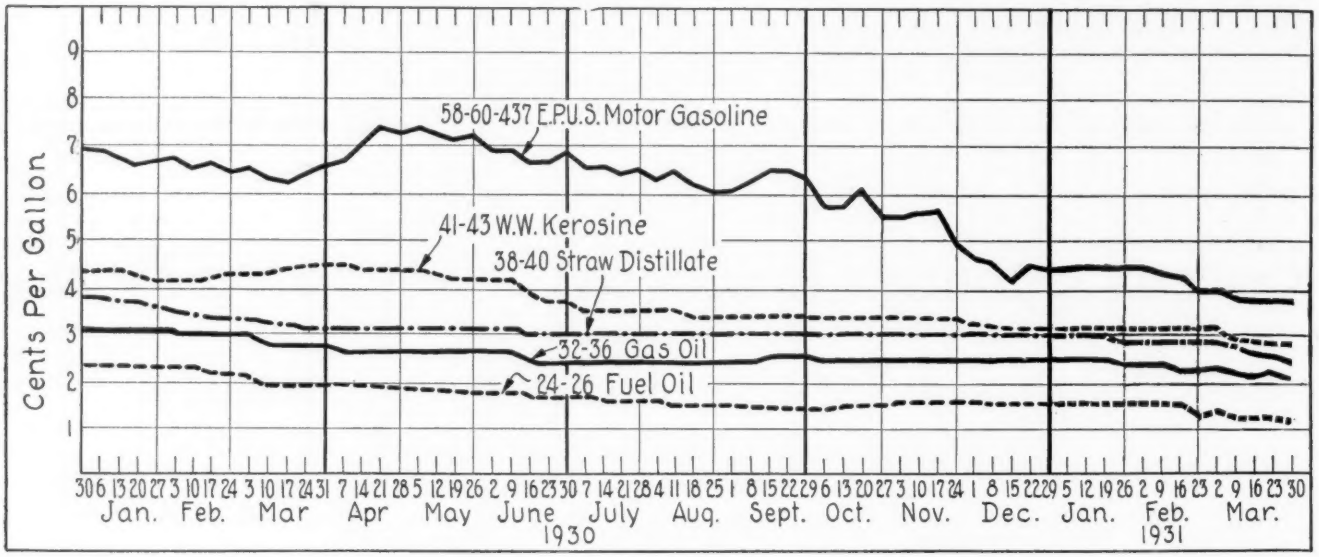
Kerosine was dull in most quarters, although some sellers said they had experienced a satisfactory demand. Prices were without material change.

Demand for home burner oils was reported slack by most sellers. A slight increase was noted in the tank wagon demand for these oils following colder weather in much of the middle west. Recessions were noted in the prices for one or two grades. Industrial concerns continued to take little interest in the market and prices of heavy fuel oils were lower.

---

TULSA—W. W. Scheumann, recently with the Cities Service Refining Co. at Boston, has been transferred to Okmulgee, Okla., as chief chemist of the Empire Oil & Refining Co.'s Mid-Continent refining research and control laboratories. He succeeds A. L. Davis, who has gone to New York with the H. L. Doherty Co.'s research department.

## Current Prices of Principal Mid-Continent Refined Products


Cents Per Gallon
58-60-437 E.P.U.S. Motor Gasoline
41-43 W.W. Kerosine
38-40 Straw Distillate
32-36 Gas Oil
24-26 Fuel Oil
Jan. Feb. Mar Apr May June July Aug. Sept. Oct. Nov. Dec. Jan. Feb. Mar.
1930
1931

*Prices shown are in Group 3 basis and extended to date shown in Refinery Market Tables Section of this issue*

## Prices for Fixing Canadian Dumping Duty Lowered

TORONTO, March 26.—Values for duty-fixing purposes on refined gasoline entering Canada have been set as follows, per wine gallon;

From Pennsylvania and New York District, 7.292 cents.

From Toledo, Detroit, Cleveland, and district, 7.905 cents.

From Chicago and district, 6.805 cents.

From Minneapolis and district, 7.155 cents.

From Wood River, St. Louis and district, 6.405 cents.

From Mid-Continent district, including Oklahoma, Kansas, part of Missouri, Arkansas, and North Texas, 4.655 cents.

From South Texas, and Louisiana district, 6.205 cents.

From Wyoming and district, 4.655 cents.

From Montana and district, 7.655 cents.

If gasoline is imported from these districts at refinery prices below those mentioned above, there is added to the regular duty of 2½ cents per Imperial gallon a special or dumping duty equivalent to the difference between the invoice price and the prices as shown above.

### Bill Allows City Gas Taxes

HOUSTON, March 21.—In line with its efforts to incite oil marketers and jobbers against increased taxation, the Texas Petroleum Marketers Association sent out another bulletin, March 14, calling attention to Texas House bill No. 900, which proposes to confer the right on governing bodies of cities of 5000 or less population to levy a tax up to 1½ cents per gallon on gasoline sold within the limits of these cities.

L. H. Flinn, managing director of the association, points out that the bill would affect mostly smaller marketers in the small towns whose customers would purchase their gasoline at highway stations outside the city limits if such a tax bill passed.

Kerosine exports from the United States to the United Kingdom in the first 10 months of 1930 totaled 2,365,000 barrels, or about half of the latter's total imports.

## Shipments From Southern California

LOS ANGELES, March 26.—Shipments of bulk petroleum from southern California ports to Foreign and Atlantic Seaboard ports fell to still newer levels for week ended March 21. The total was 674,347 barrels, a decrease of 105,256 barrels under the record low of a week ago. Destination and quantity of shipments were as follows:

| Destination | Crude | Gasoline | Diesel | Fuel | Total |
|---|---|---|---|---|---|
| Pacific For. | 101,164 | ..... | 110,278 | 271,194 | 482,636 |
| Atlantic Dom. | ..... | 191,712 | ..... | ..... | ..... |
| Atlantic For. | NONE | | | | |

### *Prices 10 Years Ago*
### *March 28, 1921*

| | Oklahoma | Penna. |
|---|---|---|
| 58-60 U. S. Motor | 16.50-17.00c | 18.75-19.25c |
| 80-84 Natural | 9.50-10.50c | ..... |
| Kerosine (42-43 Okla.; 47 w. w. Pa.) | 4.50-5.00c | 9.00-9.25c |
| Fuel Oil (24-26 Okla.; 36-40 Pa.) | $0.75-$0.85 | 4.75-5.00c |
| Crude (Okla. 35-35.9) | $1.75 | $3.00 |
| Chicago tank wagon (no state tax) | | 23.00c |

### *Prices A Year Ago*
### *March 31, 1930*

| | Oklahoma | Penna. |
|---|---|---|
| 58-60 U. S. Motor | 6.5312c | 7.375-7.75c |
| Grade A Natural | 5.75c | ..... |
| Kerosine (Okla. 41-43; Pa. 47 w. w.) | 4.25-4.50c | 6.375-6.75c |
| Fuel Oil (Okla. 24-26; Pa. 36-40) | $0.80-$0.85 | 4.25-4.50c |
| Crude (Okla. 35-35.9) | $1.17 | $2.75 |
| Chicago tank wagon (including 3c tax) | | 17.00c |

# Mid-Continent Refinery Markets

## East Texas Crude Posting Features Market

Staff Special
TULSA, March 28

POSTING of prices for crude oil in the East Texas fields announced by Magnolia Petroleum Co., March 27, furnished the feature news for the Mid-Continent refinery market the week of March 23 to 28.

It was too early to determine just what effect the posting of that crude will have on the refinery market, but there were opinions aplenty. And there was a wide variance in those opinions.

Some sales managers were inclined to view the postings as a good omen for the refined gasoline market. By placing East Texas crude on a parity with north Texas and Oklahoma crudes, there would be less stimulus for refiners to seek the East Texas crude for their plants. At the same time the new refiners in the East Texas field would have no advantage over the other districts in cost of raw material, and would not be as potent competitors as had been feared.

Other refinery executives were of the opinion the posting was announced for whatever effect it could have on the proration meeting at Austin. Magnolia, they said, was in their own opinion, "showing the boys the promised land if proration became effective." One or two sales officials said they feared now that a posting had been made for East Texas, that if proration did not work out there, a reduction in price schedule would spread through the entire Mid-Continent, and that meanwhile crude could be obtained in East Texas at prices considerably under the posted schedule.

The gasoline market experienced a routine week. Several sales managers said demand increased somewhat in volume. Others reported there was no change in total shipments, but that whatever loss there was in spot demand was made up in contract movement. The prices for virtually all grades of gasoline remained unchanged throughout the week, with a tendency in a few quarters for prices to advance 0.125 to 0.25 cent.

A few refiners reported inquiries more numerous for future shipment, but as far as could be learned little future business was booked. A majority of sellers declined to quote spot market prices for future business.

North Texas refiners reported a distinct increase in gasoline demand with prices more firmly entrenched than those in other districts. Arkansas and Louisiana refiners continued to obtain 4 cents for gasoline moved to differential territory, but quoted from 3.50 to 3.625 cents in competition with other districts.

Natural gasolines were comparatively sluggish as far as spot buying was concerned. Bulk of shipments were to regular accounts under contract. Spot buying was mostly in small lots. A wide price range existed for grade AA late in the week, the price being determined on the destination and the position of the seller with reference to stocks and business already on the books.

A report early in the week indicated an inquiry had been circulated for some stabilized natural gasoline for coastwise movement but as far as could be learned the business had not been placed up to close of business March 28.

While demand was light at present, a majority of manufacturers were looking forward to April in the belief an improved demand would be forthcoming.

Kerosine demand showed slight improvement during the week, and in Oklahoma the price range moved up 0.125 cent. Rains over much of the middle west will give farmers an opportunity to get into their fields for spring plowing, and jobbers apparently were preparing for an increase in kerosine buying within the next six weeks or two months.

Distillates and ordinary grades of gas oil were listless. The cold wave late in the week increased the takings of these oils slightly, but most of the instructions were for small lots, for rush shipment and were to be applied against existing contracts. The same situation was experienced by the zero grades of gas oil.

Fuel oils experienced no price changes of importance. Demand was termed as steady by most sales managers. North Texas refiners found some relief early in the week when a railroad purchased a large quantity of fuel oil. The amount was not known at the time, but was sufficient, it was said, to give some relief of several plants.

Neutral oils and bright stocks experienced no changes either in price or demand, according to majority of sales managers. Wax price was well supported at last week's level.

### Soviet Oil Trust To Cut Prices In China

LONDON—Gasoline and kerosine are to be placed on the Chinese market by the Soviet Petroleum Trust at prices which will enable traders to slash the present retail charges if negotiations now proceeding in Shanghai between the Trust and the Chinese Kwangwha Petroleum Co. are successful. Such a step would seriously affect the position of British and American oil concerns, which at present enjoy a majority of this trade throughout China.

The gasoline would be marketed by the Kwangwha company, which is the largest native oil distributing concern in China. It is proposed to bring from the Black Sea alone 3,000,000 gallons of kerosine per month.

British and American oil interests have also been negotiating with the Kwangwha concern, but have failed to face Soviet competition, which offers the products at remarkably low prices.

---

Of the 13,202,500 pounds of crude paraffin imported by Colombia during 1928, 10,241,500 pounds came from Denmark, 1,471,000 pounds from the Netherlands and 806,000 pounds from Germany. None was imported from the United States.


**Makes easy work of large pieces**

EVEN large equipment such as steam pumps and rotary tables are cleaned quickly and easily the Oakite way. No matter how heavily encrusted with oil and muck they are, a short boil in a tank containing an Oakite solution speedily does the job. Practically no scraping or scrubbing is required. Cost is low.

For information on this and other money - saving Oakite methods, write and ask to have our nearest Service Man call. No obligation.

*Oakite Service Men, cleaning specialists, are located in leading industrial centers of U. S. and Canada.*

Manufactured only by

OAKITE PRODUCTS, INC.
42C Thames St., New York, N. Y.

**OAKITE**
*Industrial Cleaning Materials and Methods*

## Comparative Prices of 58-60 U. S. Motor Gasoline, 437 E. P., Group 3 and Point of Origin, to Jobbers Only

In Effect March 30

| | *Price F.O.B. Group 3* | *Price F.O.B. Point of Origin* | *If for Particular Destination* |
|---|---|---|---|
| Oklahoma | 3.50 -4.00 | 3.50 -4.00 | |
| Kansas | 3.75 -4.00 | | S. O. Neb. & Indiana Territories, etc. |
| Kansas | | 4.00 -4.25 | Kansas only. |
| North Texas | 3.50 -3.75 | 3.50 -3.75 | |
| West Texas | 3.50 -3.75 | 3.50 -3.75 | |
| Louisiana-Arkansas | 3.625-3.75 | | Michigan, Ohio and Indiana. |
| Louisiana-Arkansas | | 4.00 | State or differential haul. |
| Indiana-Illinois | 3.50-4.25 | * | S. O. Indiana territory except Detroit and vicinity. For Ohio on delivered basis only. |

*Shipments made from Indiana and Illinois refineries, according to conditions and freight rates; no prices F. O. B. point of origin can be given.

## Chicago Tank Car Market

CHICAGO, March 28

THE Chicago market generally was unchanged last week. Gasoline buying continued on a steady basis, with orders mostly for small lots. Sales of U. S. Motor for prompt shipment were mostly at 3.50 cents and up. Carlot marketers said they could buy some Motor, for resale purposes, at 3.25 cents but most refiners asked at least 3.375 cents. A few sales of U. S. Motor for shipment over April were reported at 3.50 cents. Most of the trade were unwilling to sell at this figure for future shipment. Kerosine was quiet. Demand for distillate, gas and fuel oils remained slack.

**Following prices represent majority of sales made on Group 3 freight basis, although shipments may originate in other refining districts, such as North and West Texas, Arkansas, Indiana, Illinois, Kentucky, etc.**

| | Prices March 30 | Prices March 23 | Prices March 16 |
|---|---|---|---|
| 58-60 U. S. Motor, 437 e.p. | 3.50 – 3.875 | 3.50 – 3.875 | 3.50 – 3.875 |
| †56-62 400-437 e.p. anti-knock gasoline | 3.875– 4.875 | 3.875– 4.875 | 3.875– 4.875 |
| 60-62 437 e.p. gasoline | 3.50 – 3.875 | 3.50 – 3.875 | 3.50 – 4.00 |
| 60-62 400 e.p. gasoline | 3.625– 4.00 | 3.625– 4.00 | 3.625– 4.125 |
| 64-66 375 e.p. gasoline | 4.125– 4.50 | 4.25 – 4.50 | 4.25 – 4.50 |
| 68-70 350-360 e.p. gasoline | 4.375– 4.875 | 4.50 – 4.875 | 4.50 – 4.875 |
| *Domestic Aviation Gasoline | 6.00 – 6.25 | 6.00 – 6.25 | 6.00 – 6.25 |
| 41-43 w.w. kerosine | 2.625– 3.00 | 2.625– 3.00 | 2.75 – 3.00 |
| 42-44 w.w. kerosine | 2.875– 3.125 | 2.875– 3.125 | 3.00 – 3.25 |
| 38-40 p. w. distillate | 2.25 – 2.50 | 2.25 – 2.625 | 2.375– 2.625 |
| 38-40 straw distillate | 2.25 – 2.375 | 2.25 – 2.50 | 2.50 – 2.625 |
| 32-36 ordinary dark gas oil | 1.375– 1.625 | 1.50 – 1.75 | 1.625– 1.875 |
| 32-36 dark zero gas oil | 2.00 – 2.25 | 2.00 – 2.25 | 2.00 – 2.25 |
| 32-36 straw zero gas oil | 2.125– 2.375 | 2.125– 2.375 | 2.125– 2.375 |
| 28-30 zero fuel oil (per bbl.) | $0.75 –$0.80 | $0.75 –$0.80 | $0.775–$0.825 |
| 28-30 fuel oil (per bbl.) | $0.75 –$0.775 | $0.75 –$0.775 | $0.75 –$0.80 |
| 24-26 fuel oil (per bbl.) | $0.525–$0.575 | $0.525–$0.575 | $0.575–$0.625 |
| 18-22 fuel oil, low sulfur (per bbl.) | $0.425–$0.475 | $0.45 –$0.475 | $0.475–$0.525 |
| 18-22 fuel oil, high sulfur zero (per bbl.) | $0.45 –$0.50 | $0.45 –$0.50 | $0.475–$0.525 |
| 14-16 fuel oil (per bbl.) | $0.375–$0.425 | $0.375–$0.425 | $0.375–$0.425 |

*Prices are based on U. S. Gov't. specifications or better. Present Gov't. specifications require distillation range of 5% recovery at not more than 167° F., and not less than 122° F.; 50% recovery at 221°; 90% at 311°; 96% at 347°; end point 374° F. Gasoline of fighting grade specifications in some instances sells at a premium over domestic aviation grade. Prices represent majority of quotations.

†Over 45% benzol equivalent. Prices represent quotations and sales.

## Okla. Gasoline Tax Is Now 5 Cents

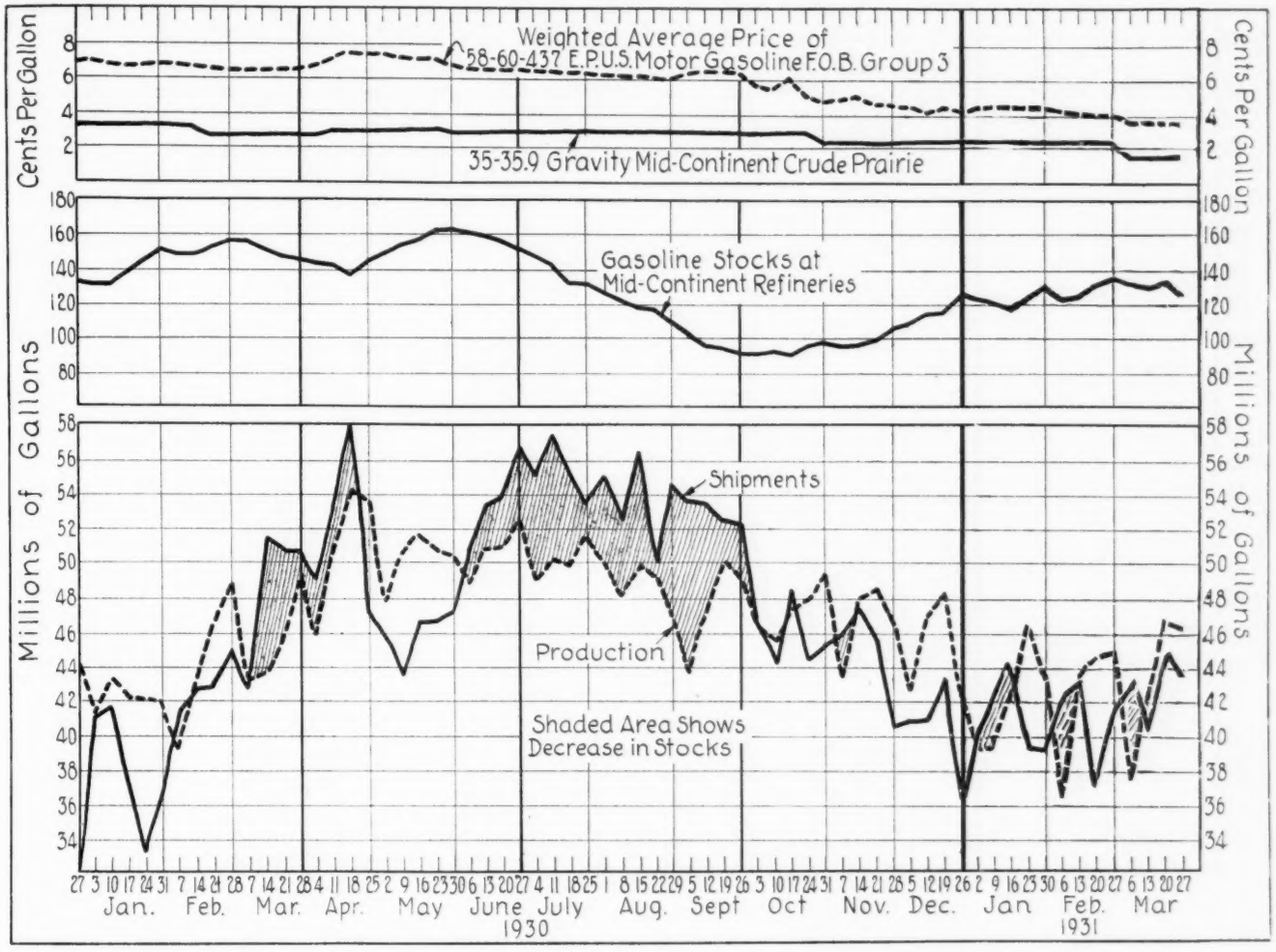
TULSA, March 28.—Oklahoma's extra cent gasoline tax, making a total of five cents per gallon, is now in effect. So far as it can be learned, it became effective March 26, although some confusion exists. The language of the act declared that it should become effective after being approved by the governor. He signed the bill March 24, it was filed with the secretary of state late in the evening of March 25, but state officials think it took effect the following day.

The additional cent is another of those diversions of the gasoline tax from the original theory of gasoline taxes, which was to improve and maintain highways. Oklahoma's additional cent is to be used for drought and unemployment relief. It ceases Dec. 31, 1931, after which the tax reverts to the four-cent basis.

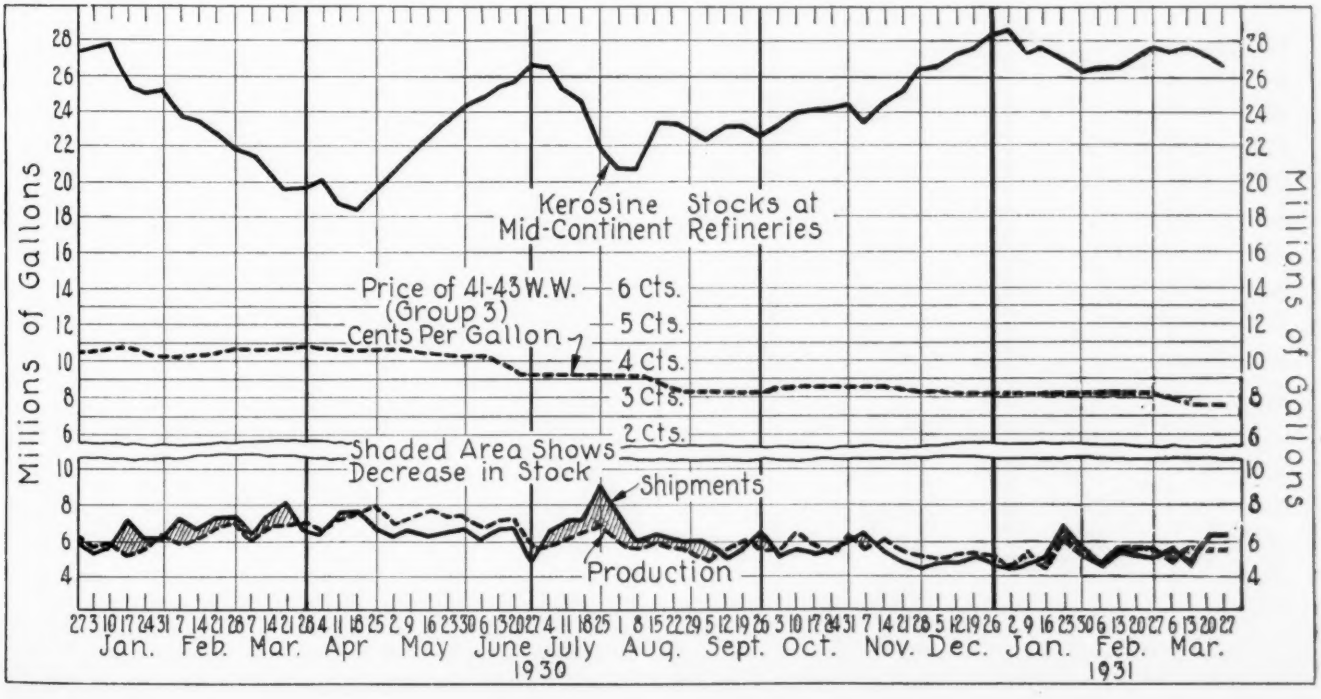
Out of this one cent $600,000 goes to reimburse the state treasury for money appropriated by this legislature for field and garden seed and $300,000 appropriated to buy food, clothing and shelter for the destitute. After those amounts have been repaid, any surplus arising from the one-cent tax will continue to be used for the destitute, up to $400,000, and anything over that will go into the state highway fund.

# Barometer of Mid-Continent Refinery Market—Week Ending March 27

*Charted Course of Prices, Production, Shipments, Stocks of Principal Refined Products, Week by Week, From Reports Made by 93 Plants to National Petroleum News*




*Prices shown above are extended to date shown in Refinery Market and Crude tables in Market section of this issue and stocks, shipments and Production are extended to date as shown in the table on page 98*



# Refinery Markets on Light Oils and Lubricants

Prices given below are in cents per gallon, except where $ is shown in tank car lots, f.o.b. Refinery. They represent prices made only to domestic jobbers who resell to the consuming public, except where otherwise noted.

*(These Refinery Prices compiled in the OIL PRICE HANDBOOK for a whole year)*

## GASOLINE AND NAPHTHA

**OKLAHOMA** (F. o. b. Oklahoma refineries)

| | Prices March 30 | Prices March 23 | Prices March 16 |
|---|---|---|---|
| 48-50 450 e.p. naphtha... | 3.50 – 3.75 | 3.50 – 3.75 | 3.50 – 3.75 |
| 50-52 450 e.p. naphtha... | 3.50 – 3.75 | 3.50 – 3.75 | 3.50 – 3.75 |
| 56-58 450 e.p. gasoline... | 3.50 – 3.625 | 3.50 – 3.625 | 3.50 – 3.625 |
| 58-60 450 e.p. gasoline... | 3.50 – 3.625 | 3.50 – 3.625 | 3.50 – 3.625 |
| 58-60 U.S. Motor 437 e.p. | 3.50 – 4.00 | 3.50 – 4.00 | 3.50 – 4.00 |
| 60-62 437 e.p. gasoline... | 3.625– 4.125 | 3.625– 4.125 | 3.625– 4.125 |
| 60-62 400 e.p. gasoline... | 3.75 – 4.25 | 3.75 – 4.25 | 3.75 – 4.25 |
| 64-66 390 e.p. gasoline... | 4.25 | 4.25 | 4.25 |
| 64-66 375 e.p. gasoline... | 4.25 – 4.50 | 4.25 – 4.50 | 4.25 – 4.50 |
| 68-70 350-360 e.p. gasoline | 4.75 – 4.875 | 4.75 | 4.75 |
| ‡Domestic Aviation Gasoline..... | 5.25 – 6.00 | 5.25 – 6.00 | 5.25 – 6.00 |

‡Prices based on U. S. Gov't. specifications or better. Present Gov't. specifications require distillation range of 5% recovery at not more than 167° F., and not less than 122° F.; 50% rec. at 221°; 90% at 311°; 96% at 347°; end point, 374°F. Fighting grade in some instances sells at a premium over domestic aviation grade. Prices represent majority of quotations.

**PENNSYLVANIA** (F. o. b. Western Pennsylvania refineries)

| | | | |
|---|---|---|---|
| 52-54 Naphtha..... | 5.25 – 5.50 | 5.375– 5.50 | 5.375– 5.50 |
| 54-56 Naphtha..... | 5.25 – 5.50 | 5.375– 5.50 | 5.375– 5.50 |
| 58-60 U.S. Motor 437 e.p. | 5.25 – 5.50 | 5.50 – 5.75 | 5.50 – 5.75 |
| 60-62 400-410 e.p. gasoline | 5.625– 6.00 | 5.75 – 6.00 | 5.75 – 6.00 |
| 64-66 390 e.p. gasoline... | 6.00 – 6.25 | 6.00 – 6.50 | 6.25 – 6.50 |
| 68-70 350-360 e.p..... | 6.75 – 7.25 | 7.00 – 7.50 | 7.00 – 7.50 |

**OHIO (Quotations of S. O. Ohio. 4c state tax to be added.)**

**U. S. Motor Gasoline**

| | | | |
|---|---|---|---|
| Ohio, delivery at any point..... | 8.00 | 8.00 | 8.00 |

**KANSAS** (F. o. b. refinery Kansas destination)

| | | | |
|---|---|---|---|
| 58-60 U.S. Motor 437 e.p. | 4.00 – 4.25 | 4.00 – 4.25 | 3.875– 4.125 |
| 60-62 437 e.p. gasoline... | 4.125– 4.375 | 4.125– 4.375 | 4.00 – 4.25 |
| 60-62 400 e.p. gasoline... | 4.25 – 4.50 | 4.25 – 4.50 | 4.50 |
| 64-66 375 e.p. gasoline... | 5.00 | 5.00 | 5.00 |

**NORTH TEXAS** (F. o. b. North Texas refineries)

| | | | |
|---|---|---|---|
| 56-58 450 e.p. gasoline... | 3.50 | 3.50 | 3.50 |
| 58-60 450 e.p. gasoline... | 3.50 | 3.50 | 3.50 |
| 58-60 U.S. Motor 437 e.p. | 3.50 – 3.75 | 3.50 – 3.75 | 3.50 – 3.75 |
| 60-62 400 e.p. gasoline... | 3.625– 4.00 | 3.625– 4.00 | 3.75 – 4.00 |
| 64-66 390 e.p. gasoline... | 4.00 – 4.25 | 4.00 – 4.25 | 4.00 – 4.25 |
| 64-66 375 e.p. gasoline... | 4.25 – 4.50 | 4.25 – 4.50 | 4.375– 4.625 |
| 68-70 350-360 e.p. gasoline | 4.50 – 4.75 | 4.50 – 4.75 | 4.75 |

****WEST TEXAS** (F. o. b. West Texas refinery, for unrestricted shipment)

| | | | |
|---|---|---|---|
| 50-52 naphtha..... | 3.375– 3.50 | 3.375– 3.50 | 3.375– 3.50 |
| 58-60 437 e.p. gasoline... | 3.375– 3.625 | 3.375– 3.625 | 3.375– 3.625 |
| 58-60 U.S. Motor 437 e.p. | 3.50 – 3.75 | 3.50 – 3.75 | 3.50 – 3.75 |

**NORTH LOUISIANA** (N. La., Ark. and Miss. destination)

| | | | |
|---|---|---|---|
| 58-60 U.S. Motor 437 e.p. | 4.00 | 4.00 | 4.00 |

**ARKANSAS** (Ark., N. La. and Miss. destination)

| | | | |
|---|---|---|---|
| 58-60 U.S. Motor 437 e.p. | 4.00 | 4.00 | 4.00 |

**CALIFORNIA** (3c tax to be added to California gasoline prices if used in state.)

| | | | |
|---|---|---|---|
| 54-58 U.S. Motor 437 e.p. | 3.75 – 4.25 | 3.75 – 4.50 | 4.75 – 5.25 |
| 54-58 U.S. Motor, for outside state shipment.... | 3.75 – 4.25 | 3.75 – 4.50 | 4.75 – 5.25 |
| 58-61 375-400 e.p. gasoline | 4.75 – 5.50 | 5.00 – 6.00 | 5.25 – 6.00 |
| 42-45 Engine Distillate 445-480 e.p..... | 3.75 – 4.25 | 4.00 – 4.50 | 4.75 – 5.25 |

## NATURAL GASOLINE

(Note: End point of all grades, not over 375F. Corrosion test adopted Oct. 1, 1927; A.S.T.M. Method D130-27T; doctor test, July 2, 1928.)

**OKLAHOMA** (F. o. b. Oklahoma refineries)

| | | | |
|---|---|---|---|
| Grade AA, 80-87.9, 90% Recovery..... | **2.25 – 2.50 | 2.625– 2.75 | 2.625– 2.75 |
| Grade A, 72-79.9, 90% Recovery..... | 2.50 – 2.625 | 2.625– 2.75 | 3.00 |
| Grade BB, 84-92, 85% Recovery..... | 2.125– 2.25 | 2.25 – 2.375 | 2.25 – 2.375 |
| Grade B, 76-83.9, 85% Recovery..... | 2.25 | 2.375– 2.50 | 2.50 – 2.625 |
| Grade C, 80-92, 78% Recovery..... | 2.00 – 2.25 | 2.125– 2.25 | 2.25 – 2.375 |

**NORTH TEXAS** (F. o. b. Breckenridge)

| | Prices March 30 | Prices March 23 | Prices March 16 |
|---|---|---|---|
| Grade AA, 80-87.9, 90% Recovery..... | **2.25 – 2.50 | 2.625– 2.75 | 2.625– 2.75 |
| Grade A, 72-79.9, 90% Recovery..... | 2.50 – 2.625 | 2.625– 2.75 | 3.00 |
| Grade BB, 84-92, 85% Recovery..... | 2.125– 2.25 | 2.25 – 2.375 | 2.25– 2.375 |
| Grade B, 76-83.9, 85% Recovery..... | 2.25 | 2.375– 2.50 | 2.50 – 2.625 |
| Grade C, 80-92, 78% Recovery..... | 2.00 – 2.25 | 2.125– 2.25 | 2.25 – 2.375 |

**NORTH LOUISIANA** (F. o. b. Monroe District)

| | | | |
|---|---|---|---|
| Grade AA..... | †2.50 | †2.75 | †2.875 |
| Grade BB..... | †2.25 | †2.375 | †2.50 |
| Grade C..... | †2.25 | †2.25 | †2.50 |

**CALIFORNIA** (F. o. b. California refineries)

| | | | |
|---|---|---|---|
| 75-85, 375-390 e.p. for blending..... | 3.50 – 4.25 | 4.00 – 4.50 | 4.50 – 5.00 |

## BURNING OILS

**PENNSYLVANIA** (F. o. b. Western Pennsylvania refineries)

| | | | |
|---|---|---|---|
| 45 w.w. kerosine..... | 4.50 – 4.75 | 4.625– 4.875 | 4.625– 5.00 |
| 46 w.w. kerosine..... | 4.75 – 5.25 | 4.75 – 5.25 | 4.75 – 5.25 |
| 47 w.w. kerosine..... | 5.00 – 5.25 | 5.00 – 5.375 | 5.125– 5.375 |
| 300 mineral seal..... | 5.25 – 5.50 | 5.50 – 6.00 | 5.50 – 6.00 |

**OKLAHOMA** (F. o. b. Oklahoma refineries)

| | | | |
|---|---|---|---|
| 41-43 w.w. kerosine..... | 2.75 – 3.00 | 2.625– 3.00 | 2.75 – 3.00 |
| 42-44 w.w. kerosine..... | 3.00 – 3.25 | 3.00 – 3.25 | 3.00 – 3.25 |

**KANSAS** (F. o. b. refinery Kansas destination)

| | | | |
|---|---|---|---|
| 41-43 w.w. kerosine..... | 3.25 | 3.25 | 3.25 |
| 42-44 w.w. kerosine..... | 3.50 | 3.50 | 3.50 |

**NORTH TEXAS** (F. o. b. North Texas refineries)

| | | | |
|---|---|---|---|
| 40-42 w.w. kerosine..... | 2.50 – 2.625 | 2.50 – 2.625 | 2.50 – 2.625 |
| 41-43 w.w. kerosine..... | 2.75 – 3.00 | 2.75 – 3.00 | 2.75 – 3.00 |

**NORTH LOUISIANA** (N. La., Ark. and Miss. destination)

| | | | |
|---|---|---|---|
| 41-43 w.w. kerosine..... | 3.50 | 3.50 | 3.50 |
| 42-44 w.w. kerosine..... | 3.75 | 3.75 | 3.75 |

**ARKANSAS** (Ark., N. La. and Miss. destination)

| | | | |
|---|---|---|---|
| 41-43 w.w. kerosine..... | 3.50 | 3.50 | 3.50 |

**CALIFORNIA** (F. o. b. California refineries)

| | | | |
|---|---|---|---|
| 38-40 w.w. kerosine..... | 4.75 – 5.50 | 4.50 – 5.00 | 4.50 – 5.50 |

## NEUTRAL OIL

**PENNSYLVANIA** (F. o. b. Western Pennsylvania refineries)

| Vis. | | (Viscosity at 70° F.) | |
|---|---|---|---|
| 200 No. 3 Assoc. Filt.... | †22.00 –23.00 | †22.50 –23.00 | †22.50 –23.50 |
| 180 No. 3 Assoc. Filt.... | †19.00 –20.00 | †19.50 –20.50 | †19.50 –20.50 |
| 150 No. 3 Assoc. Filt.... | †17.00 –18.00 | †17.00 –18.00 | †17.00 –18.00 |

**Note:** Low cold test neutral oils are quoted approximately 6c per gal. higher than prices shown above.

| | | (Non Viscous) | |
|---|---|---|---|
| 34 Grav. 330-340 Flash... | 5.50 – 6.00 | 5.50 – 6.00 | 5.50 – 6.00 |

****MID-CONTINENT** (F. o. b. Mid-Continent refineries)

| Vis. | Color | (Viscosity at 100° F.) | | |
|---|---|---|---|---|
| 100 | No. 2..... | 5.25 | 5.25 | 5.25 – 5.50 |
| 150 | No. 3..... | 6.75 – 7.00 | 6.75 – 7.00 | 6.75 – 7.00 |
| 150 | No. 4..... | 6.50 | 6.50 | 6.50 |
| 180 | No. 3..... | 8.00 – 8.50 | 8.00 – 8.50 | 8.00 – 8.50 |
| 180 | No. 4..... | 7.75 – 8.00 | 7.75 – 8.00 | 7.75 – 8.00 |
| 180 | No. 5..... | 7.50 | 7.50 | 7.50 |
| 200 | No. 3..... | 9.50 | 9.50 | 9.50 |
| 200 | No. 4..... | 8.50 | 8.50 | 8.50 – 9.00 |
| 200 | No. 5..... | 8.25 | 8.25 | 8.25 – 8.50 |
| 220 | No. 3..... | 10.00 –10.50 | 10.00 –10.50 | 10.00 –10.50 |
| 220 | No. 4..... | 9.75 –10.25 | 9.75 –10.25 | 9.75 –10.25 |
| 220 | No. 5..... | 10.00 –10.25 | 10.00 –10.25 | 10.00 –10.25 |
| 240 | No. 3..... | 12.00 | 12.00 | 12.00 –13.00 |
| 240 | No. 4..... | 10.50 | 10.50 | 10.50 –11.00 |
| 240 | No. 5..... | 10.50 –11.00 | 10.50 –11.00 | 10.50 –11.00 |
| 280 | No. 3..... | 14.00 | 14.00 | 14.00 |
| 280 | No. 4..... | 13.00 | 13.00 | 13.00 –13.50 |
| 280 | No. 5..... | 12.00 | 12.00 | 12.00 –12.50 |

**Note:** Quotations for 0 to 10 cold test neutral oils are 1 to 2 cents higher, depending on the grade.

****Prices represent Quotations and Sales.**

**†Prices nominal ††Only one refiner quoting *Quotations only**

# Refinery Markets Wax, Lubricants, Heavy Oil

Prices given below are in cents per gallon, except where $ is shown in tank car lots, f.o.b. Refinery. They represent prices made only to domestic jobbers who resell to the consuming public, except where otherwise noted.

*(For quick reference to Refinery Prices, get the OIL PRICE HANDBOOK, published annually)*

**GULF COASTAL** (F. o. b. Gulf Coastal refineries)

| Vis. Color | Prices March 30 (Viscosity at 100° F., pour test 0) | Prices March 23 | Prices March 16 |
|---|---|---|---|
| 100—No. 2 Pale | 5.50 – 6.25 | 5.50 – 6.25 | 5.50 – 6.25 |
| 200—No. 3 Pale | 8.00 – 8.50 | 8.00 – 8.50 | 8.00 – 8.50 |
| 300—No. 3 Pale | 9.00 – 9.50 | 9.00 – 9.50 | 9.00 – 9.50 |
| 500—No. 3½ Pale | 10.00 –10.50 | 10.00 –10.50 | 10.00 –10.50 |
| 750—No. 4 Pale | 11.50 –12.50 | 11.50 –12.50 | 11.50 –12.50 |
| 1200—No. 4 Pale | 14.50 –15.00 | 14.50 –15.00 | 14.50 –15.00 |
| 2000—No. 4-5 Pale | 15.50 –16.00 | 15.50 –16.00 | 15.50 –16.00 |
| 200—No. 5½ Red Oil | 7.00 – 7.50 | 7.00 – 7.50 | 7.00 – 7.50 |
| 300—No. 5½ Red Oil | 8.00 – 8.50 | 8.00 – 8.50 | 8.00 – 8.50 |
| 500—No. 6 Red Oil | 9.00 –10.00 | 9.00 –10.00 | 9.00 –10.00 |
| 750—No. 6 Red Oil | 11.25 –11.75 | 11.25 –11.75 | 11.25 –11.75 |
| 1200—No. 5-6 Red Oil | 13.50 –14.00 | 13.50 –14.00 | 13.50 –14.00 |
| 2000—No. 6 Plus Red Oil | 15.50 –16.00 | 15.50 –16.00 | 15.50 –16.00 |

**‡CALIFORNIA** (F. o. b. California refineries)

| Vis. Color | (Viscosity at 100° F.) | | |
|---|---|---|---|
| 100—No. 3 | 9.50 –10.00 | 9.50 –10.00 | 9.50 –10.00 |
| 200—No. 3 | 11.50 | 11.50 | 11.50 |
| 300—No. 3 | 13.00 | 13.00 | 13.00 |
| 450—No. 3 | 15.50 | 15.50 | 15.50 |
| 550—No. 3 | 16.50 | 16.50 | 16.50 |
| 600—No. 3 | 17.00 | 17.00 | 17.00 |
| 200—No. 5 | 11.00 | 11.00 | 11.00 |
| 300—No. 5 | 12.00 | 12.00 | 12.00 |
| 400—No. 5 | 14.00 | 14.00 | 14.00 |
| 500—No. 5 | 15.00 | 15.00 | 15.00 |
| 600—No. 5 | 16.00 | 16.00 | 16.00 |
| 700—No. 7 | 18.00 | 18.00 | 18.00 |

‡Neutral oils not manufactured commercially in California.

## CYLINDER STOCKS

**MID-CONTINENT** (F. o. b. Mid-Continent refineries)

**(Cylinder stock prices represent quotations and sales to domestic jobbers only).**

| | | | |
|---|---|---|---|
| 190-200 Vis. D at 210° Brt. St. | 23.00 | 23.00 | 23.00 |
| 150-160 Vis. D at 210° Brt. St., 0-10 cold test | 17.50 –18.00 | 17.50 –18.00 | 17.50 –18.00 |
| 150-160 Vis. D at 210° Brt. St., 10-25 cold test | 15.00 –17.00 | 15.00 –17.00 | 15.00 –17.00 |
| 150-160 Vis. D Brt. Stock, 25-40 cold test | 15.00 | 15.00 | 15.00 |
| 150-160 Vis. E 210° Brt. St. | 15.00 –16.00 | 15.00 –16.00 | 15.00 –16.00 |
| 600 St. Ref. Olive Green | 6.00 – 8.00 | 6.00 – 8.00 | 6.00 – 8.00 |
| 600 St. Ref. Dark Green | 4.50 – 5.50 | 4.50 – 5.50 | 4.50 – 5.50 |
| Black Oil | 4.00 – 5.00 | 4.00 – 5.00 | 4.00 – 5.00 |

**PENNSYLVANIA** (F. o. b. Western Penna. refineries) (A.S.T.M. Tests)

| | | | |
|---|---|---|---|
| 600 Steam Refined, filterable | 8.25 – 8.75 | 8.25 – 8.75 | 8.25 – 8.75 |
| 650 Steam Refined | 11.50 –12.50 | 11.75 –12.50 | 11.75 –12.75 |
| 600 Flash | 13.00 –14.00 | 13.50 –14.00 | 13.50 –14.00 |
| 630 Flash | 18.50 –20.00 | 18.50 –20.00 | 18.50 –20.00 |
| 600 Warren E | 12.00 –13.00 | 12.25 –13.00 | 12.25 –13.00 |
| 600 Oil City E | †12.00 –12.50 | 12.00 –13.00 | 12.00 –13.00 |
| 600 D Filtered | †14.50 –15.00 | †14.50 –15.00 | †14.50 –15.00 |
| Cold Test Stocks, 140-150 vis. at 210°, 540-550 flash, No. 8 color, ‡20 pour test and below | 18.50 –19.00 | 18.50 –19.00 | 18.50 –19.00 |
| No. 8 color, ‡25 and 35 pour test | 18.00 –19.00 | 18.00 –19.00 | 18.00 –19.00 |
| No. 8 color, ‡40 pour test and above | 18.00 –19.00 | 18.00 –19.00 | 17.50 –19.00 |

‡Beginning March 16, pour tests changed to those shown above. Were formerly: 25 pour test; 25-35 pour test; and above 35 pour test, respectively.

## WAX

**PENNSYLVANIA** (Per pound, F. o. b. New York)

| | | | |
|---|---|---|---|
| 122-124 white crude scale a.m.p. | 2.25 – 2.375 | 2.25 – 2.375 | 2.25 – 2.375 |
| 124-126 white crude scale, a.m.p. | 2.25 – 2.375 | 2.25 – 2.375 | 2.25 – 2.375 |

****OKLAHOMA** (Per pound in barrels; in a few instances, per pound in burlap bags; F. o. b. Oklahoma refineries.)

| | | | |
|---|---|---|---|
| 124-126 White Crude Scale, a.m.p. | 2.00 | 2.00 | 1.875– 2.00 |

## DISTILLATE, GAS AND FUEL OIL

**PENNSYLVANIA** (For outside Pittsburgh district)

| | | | |
|---|---|---|---|
| 36-40 fuel oil | 2.875– 3.25 | 3.00 – 3.25 | 3.00 – 3.25 |
| 30-34 fuel oil | 3.00 – 3.25 | 3.125– 3.25 | 3.125– 3.25 |
| 28-32 fuel oil | 3.00 – 3.25 | 3.125– 3.25 | 3.125– 3.25 |

**Note:** Zero cold test fuel oils were quoted 0.25c to 0.50c higher than prices shown above up to March 30.

**†Prices nominal ††Only one refiner quoting *Quotations only**

**OKLAHOMA** (F. o. b. Oklahoma refineries)

| | Prices March 30 | Prices March 23 | Prices March 16 |
|---|---|---|---|
| 38-40 straw distillate | 2.25 – 2.50 | 2.375– 2.625 | 2.50 – 2.625 |
| 36-38 straw distillate | 2.25 – 2.375 | 2.25 – 2.375 | 2.25 – 2.375 |
| 32-36 straw gas oil | 2.00 – 2.25 | 2.00 – 2.25 | 2.00 – 2.25 |
| 32-36 straw gas oil zero | 2.25 – 2.375 | 2.25 – 2.375 | 2.25 – 2.375 |
| 32-36 dark gas oil | 1.75 | 1.75 | 1.75 |
| 32-36 dark gas oil zero | 2.00 – 2.25 | 2.00 – 2.25 | 2.00 – 2.25 |
| 28-30 zero fuel oil(per bbl.) | $0.775–$0.825 | $0.80 –$0.85 | $0.80 –$0.85 |
| 28-30 fuel oil (per bbl.) | $0.75 –$0.80 | $0.75 –$0.80 | $0.75 –$0.80 |
| 26-28 fuel oil (per bbl.) | $0.65 –$0.70 | $0.65 –$0.70 | $0.65 –$0.70 |
| 24-26 fuel oil (per bbl.) | $0.50 –$0.55 | $0.50 –$0.55 | $0.50 –$0.55 |
| 22-26 fuel oil (per bbl.) | $0.475–$0.50 | $0.475–$0.50 | $0.475–$0.50 |
| 18-22 fuel oil (per bbl.) | $0.425–$0.45 | $0.425–$0.45 | $0.425–$0.45 |
| 16-20 fuel oil (per bbl.) | $0.375–$0.425 | $0.375–$0.425 | $0.375–$0.425 |
| 14-16 fuel oil (per bbl.) | $0.35 –$0.40 | $0.35 –$0.40 | $0.35 –$0.40 |

**KANSAS** (F. o. b. refinery Kansas destination)

| | | | |
|---|---|---|---|
| 38-40 straw distillate | 2.75 – 3.00 | 2.75 – 3.00 | 2.75 – 3.00 |
| 36-38 straw distillate | 2.75 | 2.75 | 2.75 |
| 32-36 straw gas oil | 2.50 – 2.625 | 2.50 – 2.625 | 2.50 – 2.625 |
| 18-22 fuel oil (per bbl.) | $0.50 –$0.60 | $0.50 –$0.60 | $0.50 –$0.60 |
| 10-14 fuel oil (per bbl.) | $0.425–$0.50 | $0.425–$0.50 | $0.425–$0.50 |

**NORTH TEXAS** (F. o. b. North Texas refineries)

| | | | |
|---|---|---|---|
| 38-40 straw distillate | 2.25 – 2.50 | 2.375– 2.50 | 2.375– 2.50 |
| 38-40 p.w.treated distillate | 2.375– 2.625 | 2.50 – 2.75 | 2.50 – 2.75 |
| 32-36 gas oil, cracked | 1.75 – 2.00 | 1.75 – 2.00 | 1.75 – 2.00 |
| 32-36 St. reduced gas oil | 1.50 – 1.75 | 1.50 – 1.75 | 1.50 – 1.75 |
| 24-26 fuel oil (per bbl.) | $0.375–$0.425 | $0.375–$0.425 | $0.375–$0.425 |
| 20-24 fuel oil (per bbl.) | $0.35 –$0.40 | $0.35 –$0.40 | $0.35 –$0.40 |
| 18-22 fuel oil (per bbl.) | $0.325–$0.35 | $0.325–$0.35 | $0.325–$0.35 |

****WEST TEXAS** (F. o. b. West Texas refinery, for unrestricted shipment.

| | | | |
|---|---|---|---|
| 34-38 gas oil | 2.00 | 2.00 | 2.00 |
| 30-32 gas oil | 1.50 | 1.50 | 1.50 |
| 28-30 zero gas oil | 2.00 – 2.25 | 2.00 – 2.25 | 2.00 – 2.25 |
| 18-22 fuel oil (per bbl.) | $0.375–$0.40 | $0.375–$0.40 | $0.375–$0.40 |

**NORTH LOUISIANA** (N. La., Ark. and Miss. destination)

| | | | |
|---|---|---|---|
| 32-36 gas oil, dark | 2.50 | 2.50 | 2.50 |
| 32-36 gas oil, straw | 2.50 | 2.50 | 2.50 |
| 14-16 fuel oil (per bbl.) | $0.60 –$0.70 | $0.60 –$0.70 | $0.60 –$0.70 |

**ARKANSAS** (Ark., N. La. and Miss. destination)

| | | | |
|---|---|---|---|
| 32-36 gas oil, straw | 2.25 – 2.50 | 2.50 | 2.50 |
| 32-36 dark gas oil | 2.25 – 2.50 | 2.50 | 2.50 |
| 28-30 gas oil | 2.125– 2.25 | 2.25 | 2.25 |
| 20-24 fuel oil (per bbl.) | $0.75 | $0.75 | $0.75 |
| 9-12 fuel oil (per bbl.) | $0.65 | $0.65 | $0.65 |
| Black oil | 3.25 | 3.25 | 3.25 |

**CALIFORNIA** (F. o. b. San Joaquin Valley. Nominal pipe line charge to San Francisco 24c per bbl. more and to San Pedro 20c per bbl. more.)

| | | | |
|---|---|---|---|
| 14-18 fuel oil (per bbl.) | $0.45 –$0.55 | $0.40 –$0.55 | $0.45 –$0.60 |
| 14-18 Bunker oil (per bbl.) | $0.58 –$0.70 | $0.60 –$0.85 | $0.60 –$0.85 |
| 30-34 gas oil (per bbl.) | $0.80 –$0.90 | $0.85 –$0.95 | $0.85 –$0.95 |
| 27 Plus Diesel oil (per bbl.) | $0.75 –$0.85 | $0.75 –$0.85 | $0.75 –$0.85 |

## PETROLATUMS

**PENNSYLVANIA** (Per pound, in barrels, carload lots, ††f. o. b. Penna. refinery. In tank cars 5/8c to ¾c per pound less.) Two refiners quoting.

| | | | |
|---|---|---|---|
| Snow White | 7.00 – 7.25 | 7.00 – 8.00 | 7.00 – 8.00 |
| Lily White | 6.125– 6.25 | 6.125– 7.00 | 6.125– 7.00 |
| Cream White | 5.125– 5.25 | 5.125– 6.00 | 5.125– 6.00 |
| Light Amber | 2.875– 3.00 | 2.875– 3.00 | 2.875– 3.00 |
| Amber | 2.625– 2.75 | 2.625– 2.75 | 2.625– 2.75 |
| Red | 2.00 – 2.50 | 2.00 – 2.50 | 2.00 – 2.50 |

## PETROLEUM COKE

****OKLAHOMA** (F. o. b. Oklahoma refineries)

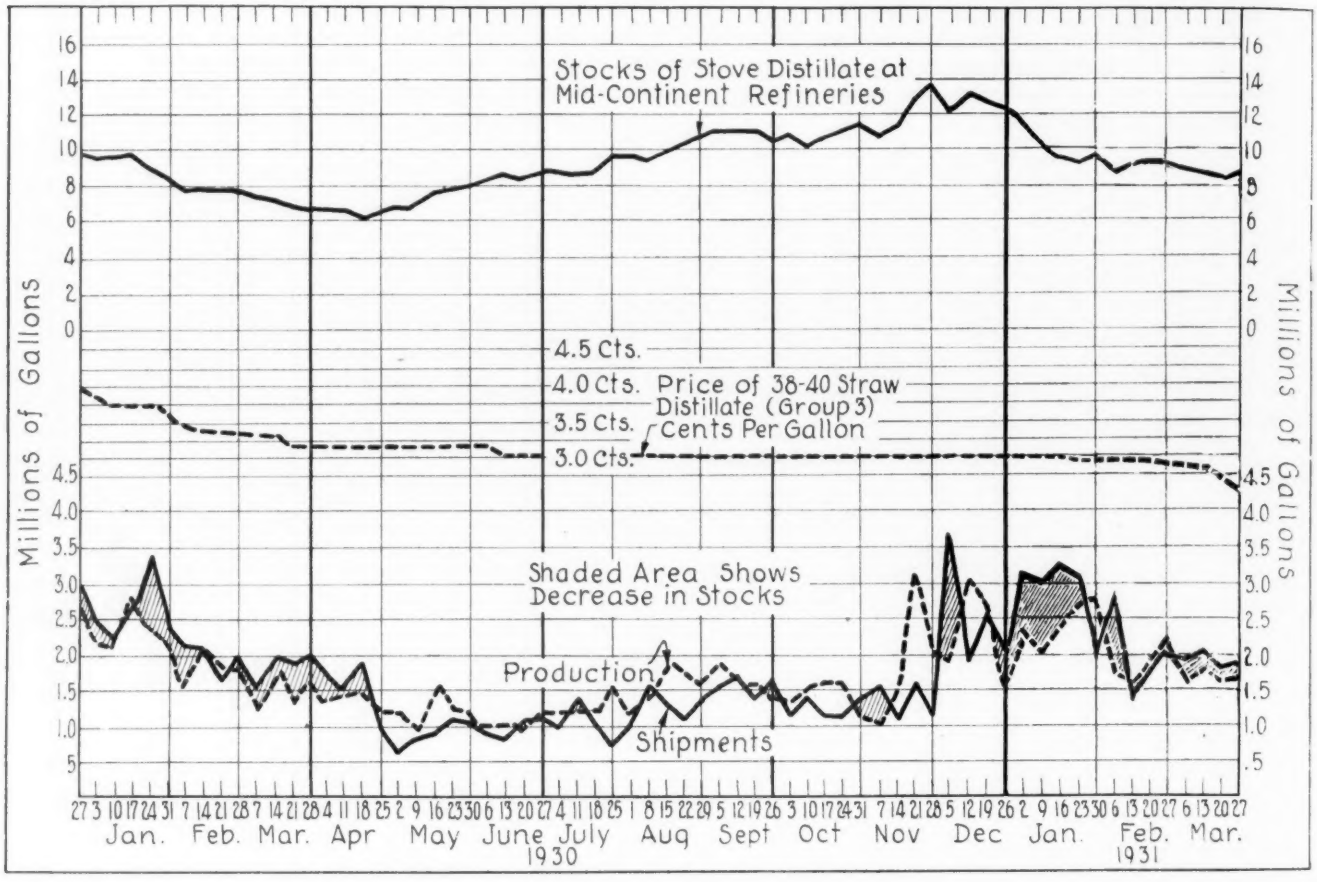
**(Per ton in car lots)**

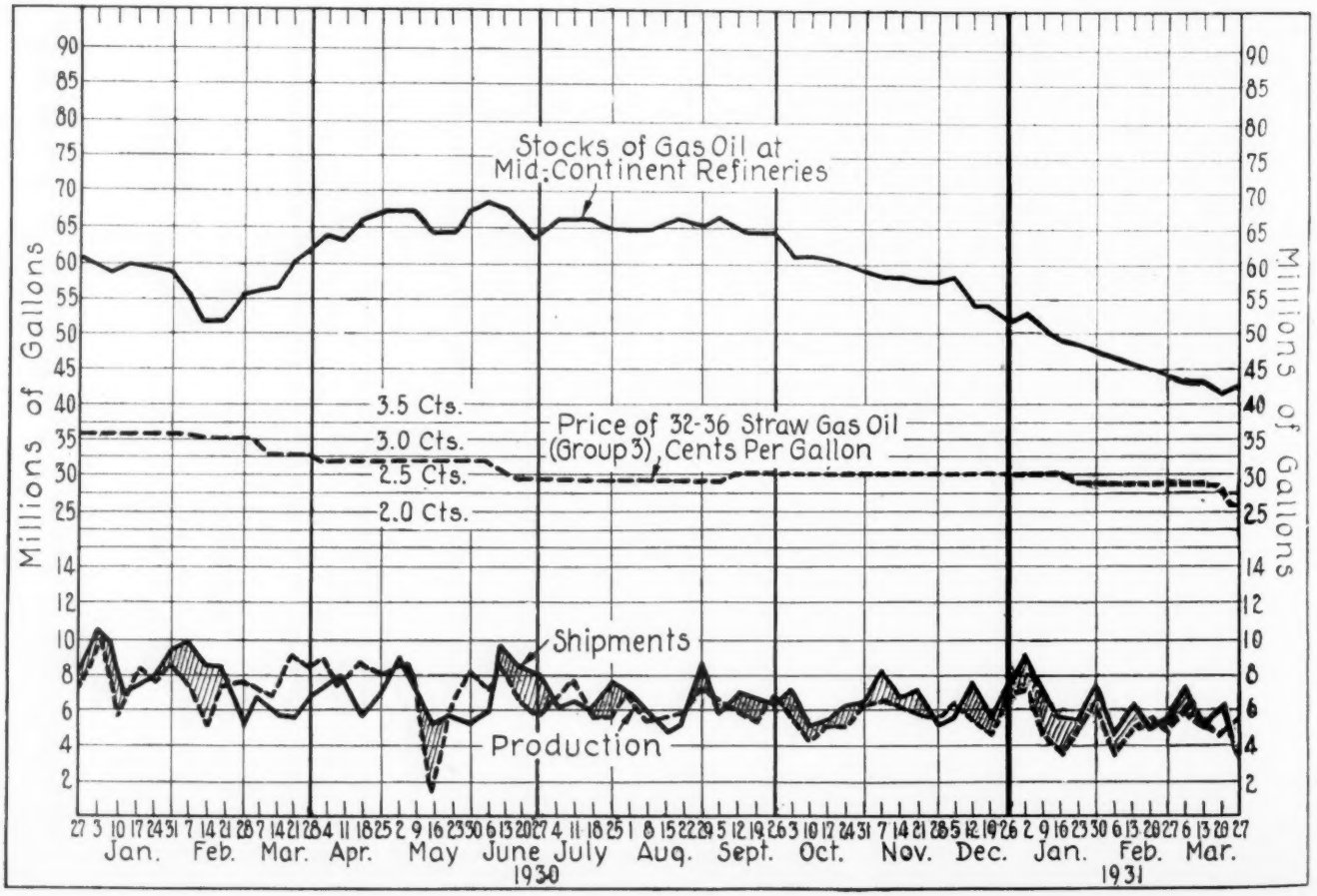
| | | | |
|---|---|---|---|
| Lump | $4.50 –$5.00 | $4.50 –$5.00 | $4.50 –$5.00 |
| Still run | $3.00 | $3.00 | $3.00 |
| Breeze | $2.00 | $2.00 | $2.00 |

****Prices represent Quotations and Sales**

# Barometer of Mid-Continent Refinery Market—Week Ending March 27

*Charted Course of Prices, Production, Shipments, Stocks of Principal Refined Products, Week by Week, From Reports Made by 93 Plants to National Petroleum News*

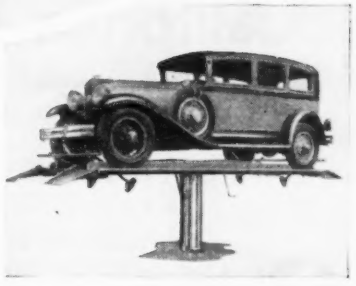

Stocks of Stove Distillate at Mid-Continent Refineries
4.5 Cts.
4.0 Cts.
3.5 Cts.
3.0 Cts.
Price of 38-40 Straw Distillate (Group 3) Cents Per Gallon
Shaded Area Shows Decrease in Stocks
Production
Shipments
Millions of Gallons
Jan. Feb. Mar. Apr May June July Aug Sept Oct Nov Dec Jan. Feb. Mar.
1930
1931


Stocks of Gas Oil at Mid-Continent Refineries
3.5 Cts.
3.0 Cts.
2.5 Cts.
2.0 Cts.
Price of 32-36 Straw Gas Oil (Group 3), Cents Per Gallon
Shipments
Production
Millions of Gallons
Jan. Feb. Mar. Apr. May June July Aug. Sept. Oct. Nov. Dec. Jan. Feb. Mar.
1930
1931

# A New free Wheel Lift with Visible Safety

At last! Here is a free wheel lift that is as easy to operate as a roll-on type lift. And it's just as safe as it is efficient. The operator, stationed at the front end of the lift, is in position to direct the car onto the lift and to watch the approach of the lift to the car. Extra long front jacks and rear cradle make the lift suitable for pleasure cars of any length without special adjustment. The Safety Column, (strong enough to support 5 times the load), automatically drops into place as the lift reaches either half height or full height and must be latched up by hand before the lift can possibly descend.

By watching the tip of the tilting, equalizing rails, the operator is able to quickly balance the car, which decreases air consumption by 30 to 40%. However, Service Lift is guaranteed to operate smoothly, either up or down, even though the car is placed at one extreme end of the rails. No bind in this plunger because the tilting rails take up the difference and eliminate "monkey wrench bite." Our 3-color Folder-Catalog tells all about it. Write for it today.



*A full line of Roll-On Type Lifts, all with optional Visible Safety. Six Models in all. Write for 3-color Folder-Catalog describing the Deluxe Hydraulic Rotating Service Lift.*

LICENSED UNDER U. S. PATENTS

No. 1552326 No. 1691807
No. 1750597 No. 1767982

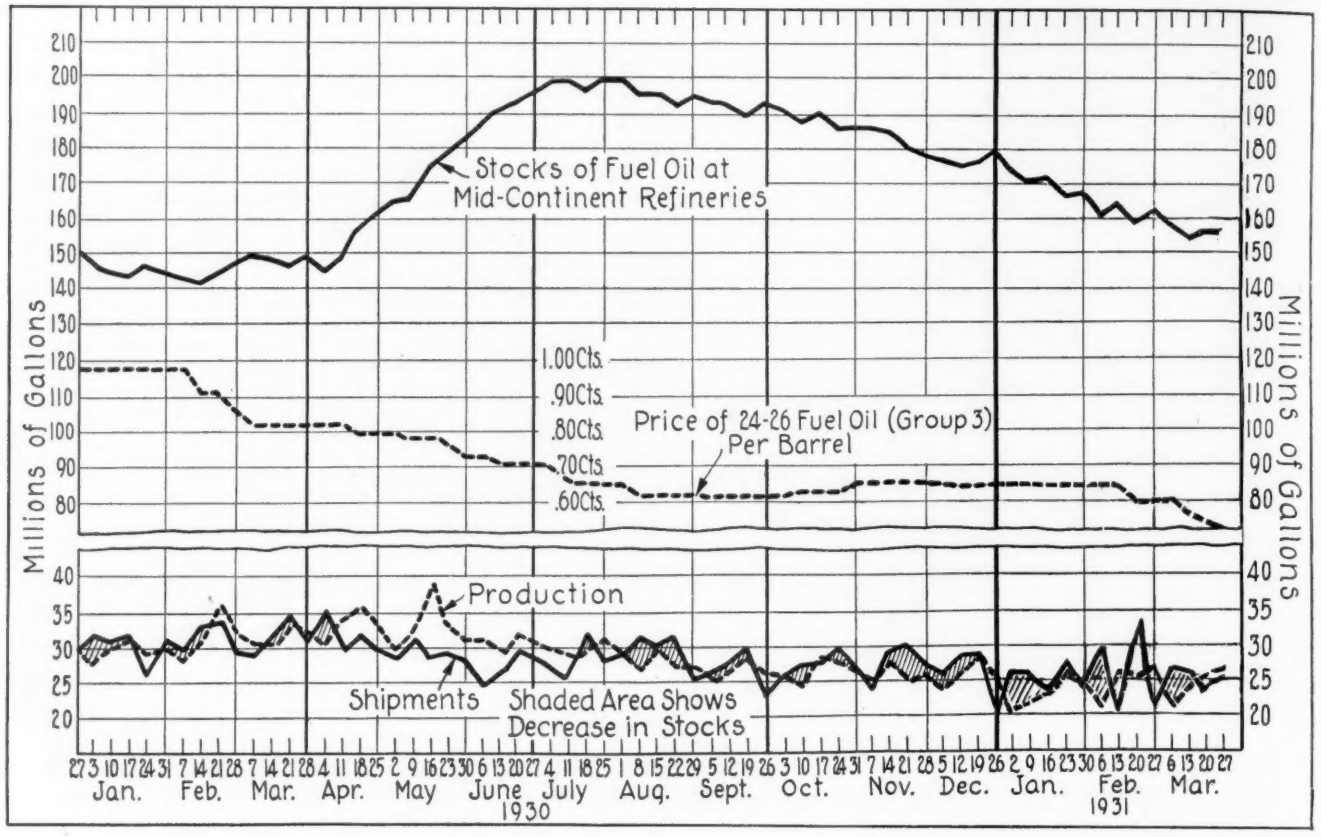
*Other Patents Pending*

# Service Lift

HOLLISTER-WHITNEY CO. Box M4 QUINCY, ILLINOIS

## Barometer of Mid-Continent Refinery Market—Week Ending March 27

*Charted Course of Prices, Production, Shipments, Stocks of Principal Refined Products, Week by Week, From Reports Made by 93 Plants to National Petroleum News*




# California Refinery Market

## Lower Prices Fail to Stimulate Buying

LOS ANGELES, March 28

ALTHOUGH California bulk market traders could see little prospect of immediate buying of most commodities, even with the reduced crude oil and gasoline price structures, a fairly consistent inquiry for gas oil was indicated.

Quotations for gas oil in cargo lots were said to range in the neighborhood of $0.85 to $0.95 with the possibility that they might be shaded to $0.80 on a firm offer.

Tanker rates for dirty boats of approximately $0.45 to $0.47 per barrel indicated $0.80 would have to be shaded to get gas oil business in competition with the Gulf coast.

Some activity was reported in the local bunkering trade. Quotations for dock delivery were $0.62 to $0.64, and extended upward to $0.66 to $0.68 for barge deliveries. Purely exploratory queries made up the other news on California bulk markets.

In domestic markets, tank car quotations for U. S. Motor gasoline fell to new low levels as independent refiners tried to retain their gallonage or to relieve overcrowded storage facilities. Straight run gasoline was quoted generally at 3.75 to 4.25 cents, exclusive of tax, for both in- and out-of-state shipment. Tank truck and trailer deliveries from the Los Angeles Basin were being made at 7 to 7.50 cents, including the tax, and retail prices in the same territory ranged from 8 to 10.50 cents.

Many independently operated stations, handling major gasolines in competitive areas, posted prices as low as 8.50 cents. They are able to do this through special allowances made to them by the refiners.

In sympathy with motor fuel, natural gasoline quotations moved downward. As the week ended, the spread was 3.50 to 4.25 cents. Operators are almost willing to give this commodity away rather than interfere with their production of dry gas for which there is a steady demand.

Traders reported that heavy oils were beginning to feel the effect of the lower crude oil price structures on the Pacific Coast. Although quotations for gas oil, diesel oil and fuel oils have remained comparatively constant during recent low quotations for gasoline, traders thought lower prices would be in order before long. Slackness in the tank car market for gas oil the past week caused quotations to break to $0.80 to $0.90, a decrease of approximately 5 cents per barrel under prices of a week ago. Diesel and fuel oils ranged from $0.75 to $0.85 and $0.45 to $0.55 per barrel respectively.

---

**Slack to Build Texas Refinery**

TULSA, March 28.—Ellis G. Slack, president of the Slack Petroleum Co., tank car marketing company of Tulsa, will build a 2500-barrel plant at Willow Springs, near Longview, Tex. This is the first venture by Mr. Slack in the refining business. He has been in Tulsa for about three years, prior to which he conducted a marketing business in Denver.

## Pennsylvania Markets

### Demand Generally Light

CLEVELAND, March 28.—There was little of outstanding interest in the western Pennsylvania refinery market the last week in March. Demand for all products, generally speaking, was light. Lubricating oil prices remained steady. Prices of other commodities were lower.

A 100-car inquiry for kerosine was perhaps the biggest item of the week's activity. The inquiry, however, was withdrawn toward the end of the week. Prices for this commodity worked slightly lower following its withdrawal. A broker who had been given the inquiry reported he had no trouble in finding the quantity sought.

Refiners reported considerable difficulty in moving gasoline. Some distress material appeared in the market. One refiner reported he had lost U. S. Motor business by quoting 5.125 cents on a small lot. While general market prices were not this low, they were off 0.125 to 0.25-cent from the previous week's levels.

Fuel oil prices dropped below 3 cents in the Bradford district but this was the minimum at which any grade was offered in the Oil City and Warren districts.

Apparently the refinery demand for neutral oils has been pretty well satisfied; there was a noticeable letup in inter-refinery trading. There has been very little demand from jobbers so far this year and traders are looking forward to this class of buying opening up in the near future. Offerings of neutrals were only slightly freer the past week; prices remained steady and the general situation at the end of the week still was described by many of the trade as being tight.

Bright stock was offered at a minimum of 18 cents for any grade. There was little demand for this commodity but at the same time prices displayed no signs of falling.

Cylinder stocks were quiet. Some of the filtered grades were offered at lower prices.

Wax also was quiet with prices for both the 122-124 and 124-126 A.m.p. grades of white crude scale unchanged at 2.25 to 2.375 cents a pound, New York.

---

### Is Shell's New Advertising Head

ST. LOUIS—Earl R. Preble, former newspaper and advertising man, has joined the Shell Petroleum Corp. here as advertising and sales promotion manager, according to Shell Globe, official publication of that company.

For the past six years Mr. Preble was with The Pennzoil Co., Oil City, Pa., for the six years previous to that, with the Powers-House Advertising Agency, Cleveland, and for five years previous to that, in advertising sales with the Cleveland News.


# *Ready* to Brand *with Your Name!*

IT'S an all pure Pennsylvania oil that the motorist wants these days. It's getting harder and harder to sell him anything else.

Here's your chance then to get as fine an oil as ever flowed from a still . . . to market under your own good name. Here are extra profits because of fatter margins . . . extra sales and goodwill for you because your dealers' customers will be back for more.

We'll make up motor oils (Sharples Process) to your own specifications. Or if you prefer we'll recommend motor oils of tested specifications of this 50 year old refining organization. In either case you're sure to get the same kind of satisfaction we're rendering now to over 700 jobbers throughout the country.

Shipments can be made as quickly as you like in tank cars, compartment tank cars, barrels or drums. Write us for the full story. It's an interesting one.

THE FREEDOM OIL WORKS CO.
Refineries at FREEDOM and CORAOPOLIS, PA.

*Also available for immediate shipment*

*140/150 Viscosity Sharples Bright Stock*
*85/90 Viscosity Sharples Bright stock*
*100% Pennsylvania Neutrals*
*600 Steam Refined*
*650 Steam Refined*
*600 Flash Steam Refined*
*630 Flash Steam Refined*
*Freedom Filtered Kerosene Oil*

FREEDOM

100% PENNSYLVANIA OILS

FO-501

# Eastern Domestic Markets

## Gasoline Prices Recede 0.5 to 1 Cent

Staff Special
NEW YORK, March 28

GASOLINE prices were reduced in eastern markets during the week ended March 28. Reductions of 0.5 to 1 cent were announced by a majority of the major companies. Buying continued slow. Price-shading by several sellers failed to stimulate buying interest.

At New York harbor regular U. S. Motor gasoline was offered by most sellers at 6.25 to 6.50 cents for delivery in tank cars. While three companies were posting higher prices at their terminals, no sales were reported at those figures. Several barges were loaded at 6 cents and slightly under for shipment to points outside of the harbor. The absence of buyers in the spot market has caused considerable comment from New York sellers the past week.

As warmer weather appeared to be near at hand, refiners offered kerosine freely at 6 cents in the New York, Philadelphia and Baltimore markets. At New York harbor, several sellers quoted 5.75 cents per gallon.

Prices for U. S. Motor gasoline declined a 0.50-cent in the Philadelphia market. Gasoline moving into the Philadelphia district from the New York harbor and Baltimore districts was said to be responsible for the reduction in prices. Barge-lots sales of U. S. Motor were reported at 6.25 cents, delivered.

The Baltimore market was unsettled. Buying continued on a hand-to-mouth basis. While the majority of sellers asked 6.50 cents per gallon in tank cars, only a few sales were reported. Sales of barge lots were made at 6.25 cents and slightly lower.

California gasoline continued to be a product existing in name only. Gasoline of comparable specifications was sold in the three above mentioned markets at the same prices as for regular U. S. Motor.

The New England markets ended another week in which little spot activity was noted. Prices for U. S. Motor were down proportionally with the lower seaboard prices to the south. Most companies were posting 7 cents f.o.b. their terminals in Portland; and 6.75 cents at Boston and Providence on the same basis. Some barge business was being done at 6.25 cents, delivered.

Competition was much keener in the market for heating oils in the Boston district. The drastic reductions in retail prices announced a week ago by one large company were met by still further reductions by other large companies. Tank wagon deliveries of 28-34 gas oil were being made at 5 cents a gallon and of 36-40 furnace oil at 6 cents a gallon. These prices are only slightly higher than tank car prices.

In both the Boston and New York markets, tank car prices for 28-34 gas oil and 36-40 furnace oil remained unchanged at 4.50 cents and 5.50 cents, respectively.

# Gulf Coast Markets

## Cargo Prices Lower for All Products

Staff Special
NEW YORK, March 28

BULK markets at the Gulf became unsettled when cargo lots of gasoline were offered at lower prices. Prices for other products remained generally unchanged in a quiet market.

There was quite a flurry in the bulk market the past week when the trade received news from abroad that an English company was offering American 64-66, 375 end point gasoline to the London trade at 5.50 cents c.i.f. On the basis of current tanker rates this offer would net back 4.50 cents at the Gulf. Little credence was given to this report by the American trade.

However, one American supplier submitted a quotation of 5.50 cents for 64-66, 375 end point gasoline to the company's foreign office and received a reply that lower prices could be had from European sellers.

Domestic buyers have been quite active in their inquiry for U. S. Motor gasoline. A few cargoes have been bought for shipment to North Atlantic ports. One cargo was reported purchased at 4.625 cents. The specifications that buyers demanded were so rigid that it was doubtful whether this sale could be duplicated. However, several cargoes of U. S. Motor were reported available at 4.50 cents. Whether the anti-knock rating of this material would satisfy a discriminating buyer could not be determined.

The major suppliers of U. S. Motor gasoline have held out for prices in the neighborhood of 5 cents. Their material, it was said, will meet the most rigid tests.

The market for cased goods was fairly active. One supplier reported a sale of 3000 cases of water white kerosine and 1000 cases of U. S. Motor gasoline for prompt shipment to South America. This business was taken at the posted prices of $1.40 for the kerosine and $1.60 for the gasoline.

Cargo lots of both 44 water white and 41-43 prime white kerosine were seeking a home at 5.25 cents for the former and 4.25 cents for the latter. There were no indications that lower prices could be obtained. Gas oil was available at 3 cents in a market where inquiry for this product was totally lacking.

Bunker oil, Grade C, was offered generally in cargo lots at $0.65 per barrel. However, there were indications that $0.62 could be done on firm offer.

### Venezuela Crude

Active buying in the Venezuela crude market was held in abeyance while the major producers were undertaking to agree on production curtailments. Some material was reported available at $0.72 per barrel, f.o.b. deepwater in the Lake Maracaibo region. No sales were reported.

### Panuco Crude

The market for Panuco crude was quiet. No sales were reported. On the basis of the last sales the market for this material was regarded as $0.46 per barrel, f.o.b. Tampico.

# Wax Markets

### Prices Generally Unchanged

NEW YORK, March 28.—There was little activity in either the New Orleans or the New York wax market during the past week. The preliminary inquiry by the Spanish Monopoly several weeks ago has not resulted in closed business. Sellers were of the opinion that this business would be placed early in April.

Prices for scale and the refined waxes remained generally unchanged in both the New Orleans and New York markets.

## Foreign Opportunities

Reserved information may be obtained from the Bureau of Foreign and Domestic Commerce, Washington, and its district and co-operative offices by duly registered firms and individuals upon written request by opportunity number. The Bureau does not furnish credit ratings or assume responsibility as to the standing of foreign inquirers; the usual precautions should be taken in all cases, and where no references are offered it does not necessarily imply that satisfactory references could not be given. Correspondence may be in English unless otherwise stated.

49791.—**Asphalt,** San Juan, Porto Rico, purchase and agency.

49792.—**White petroleum oils,** Prague, Czechoslovakia, purchase.

49795.—**Lubricating oils,** Brussels, Belgium, agency.

49808.—**Lubricating oils and greases,** La Paz, Bolivia, purchase.

49877.—**Asphalt insulating materials,** Zurich, Switzerland, agency.

50015.—**Paraffin wax and technical oils,** Zagreb, Yugoslavia, purchase and agency.

50497.—**Paraffin, gasoline and lubricants,** La Paz, Bolivia, agency.

50527.—**Gasoline,** Tegucigalpa, Honduras, purchase and agency.

50547. — **Lubricating oils including cylinder and machine oils,** Vienna, Austria, agency.

50548. — **Lubricating oils,** Vienna, Austria, agency.

4665.—**Asphalt for road building and white transparent paraffin,** Vienna, Austria, agency.

50612.—**Lubricating oils,** Shanghai, China, purchase and agency.

50613.—**Pale and red lubricating oils, steam refined dark and filtered cylinder stocks, bright stocks, white oils, and pale neutrals,** Liverpool, England, purchase.

50614.—**Lubricating oils, especially green and light automobile oils,** Goteborg, Sweden, purchase.

50615.—**Pennsylvania automobile and cylinder oils,** Berlin, Germany, purchase.

50616.—**Paraffin,** Milan, Italy, purchase or agency.

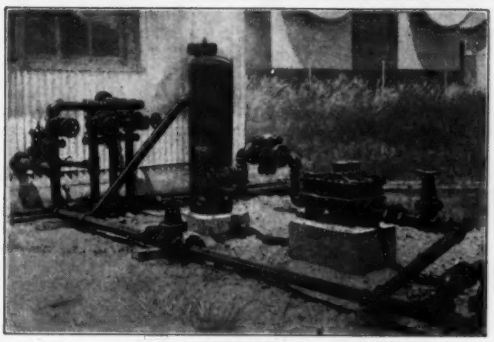
---

**Sells Michigan Refinery Output**

CHICAGO.—The output of the Old Dutch Refining Co., Muskegon, Mich., including distillate, gas and fuel oils, will be sold hereafter through the Hughes Oil Co. at 844 Rush St., Chicago. The Hughes company will continue handling all grades of petroleum products as it has in the past.

---

More than 100,000 barrels less kerosine were shipped by the United States to the Netherlands the first half of 1930 than the first half of 1929. Shipments the first half of 1930 were 708,500 barrels.

**PLANT RECEIPTS**

are accurately measured and recorded by GRANBERG METERS.

The photograph shows a typical installation with a GRANBERG METER CORP. Air Separator, Strainer and Meter. The Air Separator prevents air from being pumped through the meter when emptying Tank Cars or Transport Trucks.

*Literature mailed on request.*

**GRANBERG METER CORPORATION**
79 New Montgomery St., San Francisco, Calif.
AQUA SYSTEMS, INC., Distributors—2 Lafayette St., New York City
OILMEN'S SERVICE AND SUPPLY CO., Distributors—142 Berkeley St., Boston, Mass.
NATIONAL PUMPS CORP., Dayton, Ohio, Manufacturers of Granberg Meter Equipped Retail Pumps.

# Merit is always recognized...

Last year was no exception...the steady uninterrupted growth of our friends marketing our oils bears witness

"There's a Reason!"

PENNSYLVANIA

100% PURE PENNSYLVANIA OIL

SHARPLES
LONG RESIDUUM OILS

60/65 @ 210
75/80 @ 210
85/90 @ 210

also higher viscosities

TANK CARS ONLY

FRANKLIN CREEK REFINERY
at Franklin, Pa.
PERMIT NO. 34

DAUGHERTY REFINERY
at Petrolia, Pa.
PERMIT NO. 30

Address all communications to

**W. H. Daugherty & Son Refining Co.**

114 FIFTH AVENUE
NEW YORK, N.Y.

820 TOWER COURT
CHICAGO, ILL.

# Complete Seaboard Market

*(Export Markets for whole year given in OIL HANDBOOK. Each volume carries refinery, tank wagon, crude and export markets—complete for the whole year)*

## Eastern Domestic Market

**(Prices for tank car lots, f. o. b. refinery or seaboard terminal, representing majority of sales and quotations. Prices shown below do not include inspection tax levied in some states.)**

| U. S. MOTOR GASOLINE | Prices March 30 | Prices March 23 | Prices March 16 |
|---|---|---|---|
| New York harbor | 6.25 – 6.50 | 6.25 – 6.75 | 6.50 – 7.00 |
| Portland district | 7.00 | *7.75 – 8.00 | 7.75 – 8.00 |
| Boston district | 6.75 | *7.40 – 7.50 | *7.40 – 7.50 |
| Providence district | 6.75 | *8.25 – 8.50 | *8.25 – 8.50 |
| Philadelphia district | 6.50 | 6.75 – 7.00 | 7.00 |
| Baltimore district | 6.50 | 6.50 | 6.50 – 6.75 |
| Norfolk district | 6.50 | 7.00 | 7.00 |
| Charleston district | 6.50 | 7.00 | 7.00 |
| Savannah district | 6.50 | 7.00 | 7.00 |
| Jacksonville district | 6.50 | 7.00 | 7.00 |
| **CALIFORNIA U. S. MOTOR GASOLINE** | | | |
| New York harbor | †6.75 | †6.75 | 6.75 – 7.00 |
| Philadelphia district | †6.75 | †7.00 | †7.00 |
| Baltimore district | †6.50 | †6.50 | 6.75 |
| **‡DOMESTIC AVIATION GASOLINE** | | | |
| New York harbor | 10.00 –12.00 | 10.00 –12.00 | 10.00 –13.00 |
| Philadelphia | 10.00 –12.00 | 10.00 –12.00 | 10.00 –12.00 |
| Baltimore | 11.00 –12.00 | 11.00 –12.00 | 11.00 –13.00 |
| Boston | 11.50 –13.00 | 11.50 –13.00 | 11.50 –13.00 |

‡Prices are based on U. S. Gov't. specifications or better. Present Gov't. specifications require distillation range of 5% recovery at not more than 167°F. and not less than 122°F.; 50% recovery at 221°; 90% at 311°; 96% at 347° end point 374°F. Gasoline of fighting grade specifications in some instances sells at a premium over domestic aviation grade. Prices represent majority of quotations.

| | | | |
|---|---|---|---|
| **WATER WHITE KEROSINE** | | | |
| New York harbor | 5.75 – 6.00 | 6.00 | 6.00 – 6.25 |
| Philadelphia district | 6.00 | 6.00 | 6.25 – 6.50 |
| Baltimore district | 6.00 | 6.00 | 6.50 |
| **GAS OIL: 28-34 Gravity** | | | |
| New York harbor | 4.50 | 4.50 | 4.50 |
| Boston district | 4.50 | 4.50 | 4.50 |
| **FURNACE OIL: 36-40 Gravity** | | | |
| New York harbor | 5.50 | 5.50 | 5.50 |
| Boston district | 5.50 | 5.50 | 5.50 |
| **GRADE C BUNKER OIL (Lighterage 5c per bbl. additional)** | | | |
| New York harbor | $1.05 | $1.05 | $1.05 |
| Boston district | $1.05 | $1.05 | $1.05 |
| **DIESEL OIL** | | | |
| New York harbor | $1.85 | $1.85 | $1.85 |

†Nominal. *Delivered prices.

## New York Export Market

**(Lubricating oils are per gal. in bbls. F.a.s. New York)**

| | March 30 | March 23 | March 16 |
|---|---|---|---|
| **CYLINDER OILS (Pennsylvania Products)** | | | |
| Bright stock, No. 8 color | 23.50 –25.00 | 23.50 –25.00 | 23.50 –25.00 |
| Bright stock, No. 6½ color diluted | 22.50 –24.00 | 22.50 –24.00 | 22.50 –24.00 |
| 600 D filtered | 22.50 –25.00 | 22.50 –25.00 | 22.50 –25.00 |
| 600 Warren E filtered | 18.00 –21.00 | 18.00 –21.00 | 18.00 –21.00 |
| 600 stm. refd. unfiltered | 14.50 –16.00 | 14.50 –16.00 | 14.50 –16.00 |
| 650 stm. refd. unfiltered | 18.00 –20.00 | 18.00 –20.00 | 18.00 –20.00 |
| 600 flash steam refined | 18.50 –20.00 | 18.50 –20.00 | 18.50 –20.00 |
| 630 flash, steam refined | 24.00 –26.00 | 24.00 –26.00 | 24.00 –26.00 |
| **RED PARAFFIN OILS (Vis. 100°)** | | | |
| 300 vis. No. 6½ color | 17.00 –20.00 | 17.00 –20.00 | 17.00 –20.00 |
| 250 vis. No. 6 color | 16.50 –17.50 | 16.50 –17.50 | 16.50 –17.50 |
| 200 vis. No. 6 color | 14.75 –17.00 | 14.75 –17.00 | 14.75 –17.00 |
| **PALE PARAFFIN OILS (Vis. 100°)** | | | |
| 230 vis. No. 3¾ color | 21.50 | 21.50 | 21.50 |
| 180 vis. No. 3¼ color | 18.00 –20.00 | 18.00 –20.00 | 18.00 –20.00 |
| 100 vis. No. 2¼ color | 12.50 –15.00 | 12.50 –15.00 | 12.50 –15.00 |
| **MOTOR OILS (Vis. 100°)** | | | |
| 600 vis. No. 7 color | ..... | 28.00 –30.00 | 28.00 –30.00 |
| 500 vis. No. 6½ color | ..... | 26.50 –29.50 | 26.50 –29.50 |
| 400 vis. No. 7¼ color | ..... | 25.00 –28.00 | 25.00 –28.00 |
| 300 vis. No. 6 color | ..... | 22.00 –26.00 | 22.00 –26.00 |
| 200 vis. No. 6 color | ..... | 21.00 –23.50 | 21.00 –23.50 |

## Wax Market

**(Melting points are A.M.P. method. Prices in cents per pound, f.a.s. carload lots.)**

| NEW YORK | March 30 | March 23 | March 16 |
|---|---|---|---|
| 124-126 Yellow crude scale | 2.20 | 2.20 | 2.25 |
| 122-124 White crude scale | 2.20 – 2.25 | 2.20 – 2.25 | 2.25 – 2.375 |
| 124-126 White crude scale | 2.20 – 2.25 | 2.20 – 2.25 | 2.25 – 2.375 |
| 123-125 Fully refined | 3.25 | 3.25 | 3.25 |
| 125-127 Fully refined | 3.25 – 3.375 | 3.25 – 3.375 | 3.375– 3.50 |
| 128-130 Fully refined | 3.375– 3.50 | 3.375– 3.50 | 3.625– 3.75 |
| 130-132 Fully refined | 3.50 – 3.625 | 3.50 – 3.625 | 3.625– 3.875 |
| 133-135 Fully refined | 4.375– 4.50 | 4.375– 4.50 | 4.375– 4.50 |
| 135-137 Fully refined | 4.625– 4.75 | 4.625– 4.75 | 4.625– 4.75 |
| **NEW ORLEANS** | | | |
| 124-126 Yellow crude scale | 2.15 | 2.15 | 2.15 – 2.25 |
| 122-124 White crude scale | 2.20 – 2.25 | 2.20 – 2.25 | 2.20 – 2.30 |
| 124-126 White crude scale | 2.20 – 2.25 | 2.20 – 2.25 | 2.20 – 2.30 |
| 123-125 Fully refined | 3.25 | 3.25 | 3.25 |
| 125-127 Fully refined | 3.25 – 3.375 | 3.25 – 3.375 | 3.375– 3.50 |
| 128-130 Fully refined | 3.375– 3.50 | 3.375– 3.50 | 3.50 – 3.75 |
| 130-132 Fully refined | 3.50 – 3.625 | 3.50 – 3.625 | 3.50 – 3.625 |
| 133-135 Fully refined | 4.375 | 4.375 | 4.375 |

## Gulf Coast Bulk Market

**(Prices are f. o. b. Gulf oil terminals representing sellers' opinions covering bulk shipments of 20,000 barrels or more, for export and / or coastwise shipment unless otherwise noted.)**

| GASOLINE | Prices March 30 | Prices March 23 | Prices March 16 |
|---|---|---|---|
| U. S. Motor | 4.50 – 5.00 | 4.75 – 5.00 | 5.00 – 5.125 |
| 60-62, 400 e.p. | 4.75 – 5.25 | 5.25 – 5.375 | 5.375– 5.50 |
| 61-63, 390 e.p. | 5.25 – 5.50 | 5.375– 5.50 | 5.625– 5.75 |
| 64-66, 375 e.p. | 5.50 – 5.75 | 5.625– 5.875 | 5.875– 6.00 |
| U. S. Motor, (cases cargoes) | $1.60 | $1.60 | $1.60 |
| 64-66, cases (cargoes) | $1.70 –$1.72 | $1.70 –$1.72 | $1.70 –$1.72 |
| **KEROSINE** | | | |
| 44 water white | 5.25 | 5.25 – 5.50 | 5.25 – 5.50 |
| 41-43 prime white | 4.25 | 4.25 – 4.50 | 4.25 – 4.50 |
| Water white, cases (cargoes) | $1.40 | $1.40 | $1.40 |
| Prime white, cases (cargoes) | $1.30 | $1.30 | $1.30 |
| **GAS & BUNKER OILS** | | | |
| *26-30 translucent gas oil | 3.00 | 3.00 – 3.125 | 3.00 – 3.125 |
| *30 plus translucent gas oil | 3.00 | 3.00 – 3.125 | 3.00 – 3.125 |
| Grade C bunker oil, for ships' bunkers, per bbl. | $0.90 | $0.90 | $0.90 |
| Grade C bunker oil, per bbl. in cargoes | $0.62 –$0.65 | $0.65 | $0.65 |

*Less than ½ of 1% sulphur.
†Represents sales only.

| | | | |
|---|---|---|---|
| **MEXICAN CRUDE AND BUNKER OILS (f. o. b. Steamer, Tampico)** | | | |
| Heavy Panuco crude taxes to be paid, per bbl. | $0.46 | $0.46 –$0.48 | $0.48 –$0.50 |
| Grade C bunker oil for bunkering, taxes paid, per bbl. | $0.90 | $0.90 | $0.90 |
| **VENEZUELA CRUDE** | | | |
| F. o. b. deepwater, Lake Maracaibo region | $0.72 –$0.76 | $0.76 | $0.76 |

**SOUTH TEXAS LUBRICATING OILS (Viscosity at 100°F. cold test 0 Tanker, f. o. b. Gulf oil terminals.)**

| | | | |
|---|---|---|---|
| 100 vis. No. 2 unfiltered pale | 4.75 – 5.75 | 4.75 – 5.75 | 4.75 – 5.75 |
| 200 vis. No. 3 unfiltered pale | 6.75 – 8.25 | 6.75 – 8.25 | 6.75 – 8.25 |
| 300 vis. No. 3 unfiltered pale | 7.75 – 9.50 | 7.75 – 9.50 | 7.75 – 9.50 |
| 500 vis. No. 3½ unfiltered pale | 8.75 –10.50 | 8.75 –10.50 | 8.75 –10.50 |
| 750 vis. No. 4 unfiltered pale | 10.25–12.75 | 10.25 –12.75 | 10.25 –12.75 |
| 1200 vis. No. 4 unfiltered pale | 14.00 –16.00 | 14.00 –16.00 | 14.00 –16.00 |
| 200 vis. No. 5-6 red oil | 6.00 – 6.75 | 6.00 – 6.75 | 6.00 – 6.75 |
| 300 vis. No. 5-6 red oil | 7.00 – 7.75 | 7.00 – 7.75 | 7.00 – 7.75 |
| 500 vis. No. 5-6 red oil | 8.00 – 9.00 | 8.00 – 9.00 | 8.00 – 9.00 |
| 750 vis. No. 5-6 red oil | 9.25 –11.50 | 9.25 –11.50 | 9.25 –11.50 |
| 1200 vis. No. 5-6 red oil | 13.00 –15.00 | 13.00 –15.00 | 13.00 –15.00 |

## Pacific Export Market

**(Quotations are at seaboard, Los Angeles, in cargo lots, cents per gallon, except where otherwise noted.)**

| | March 30 | March 23 | March 16 |
|---|---|---|---|
| Gasoline, U. S. Motor, 53-55 Gravity | 4.25 – 4.75 | 4.25 – 5.00 | 4.25 – 5.00 |
| Gasoline, U. S. Motor-blends and special cuts | 4.75 – 5.25 | 4.50 – 5.25 | 4.50 – 5.25 |
| Gasoline, 400 e.p. blend | 5.50 | 4.75 – 5.50 | 4.75 – 5.50 |
| Gas Oil, 30-34 per bbl. | $0.85 –$0.90 | $0.85 –$0.90 | $0.85 –$0.95 |
| Diesel Oil, 27 plus, per bbl. | $0.85 –$0.90 | $0.75 –$0.85 | $0.75 –$0.85 |
| Bunker oil, 14-18 per bbl. | $0.62 –$0.72 | $0.65 –$0.75 | $0.65 –$0.75 |
| Fuel oil, 14-18 per bbl. | $0.60 –$0.85 | $0.60 –$0.85 | $0.60 –$0.85 |
| Kerosine, 38-40 w.w., 125-150 flash, per gal. | 4.75 – 5.50 | 4.50 – 5.50 | 4.50 – 5.50 |
| **Cased Goods** | | | |
| Gasoline, U. S. Motor | $1.75 –$1.85 | $1.75 –$1.85 | $1.75 –$1.85 |
| Gasoline, 400 e.p. blend | $1.85 –$2.00 | $1.85 –$2.00 | $1.85 –$2.00 |
| Kerosine, 38-40 w.w., 125-150 flash | $1.45 –$1.50 | $1.45 –$1.50 | $1.45 –$1.50 |

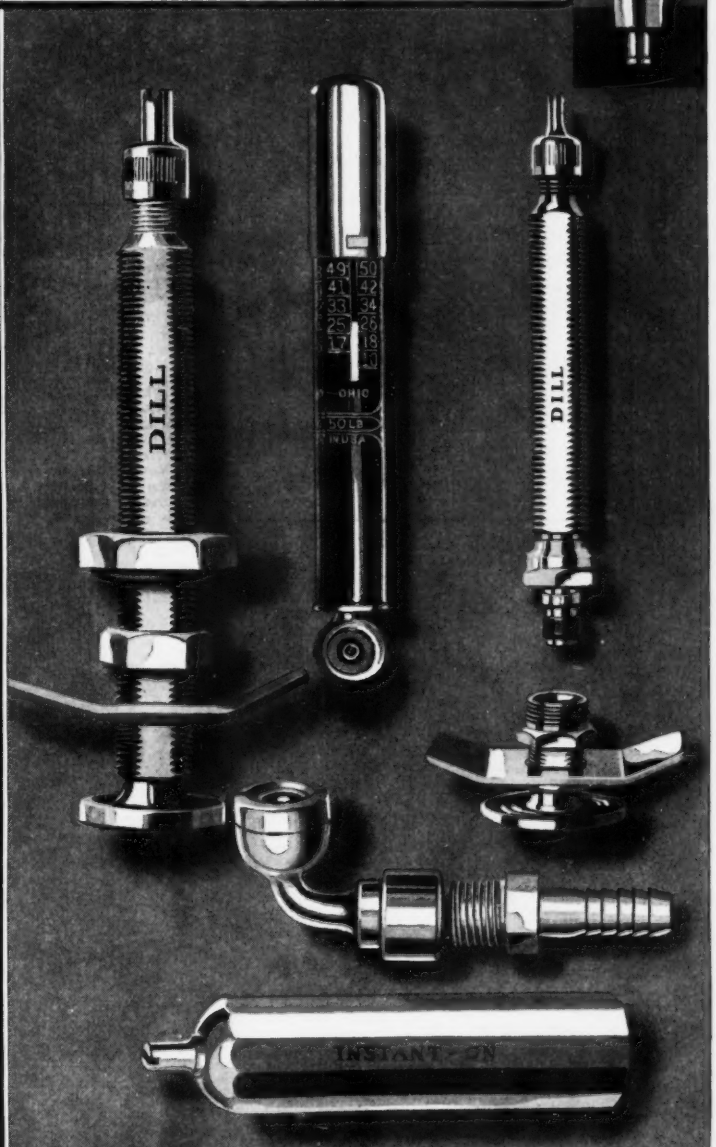
## Tanker Rates

**(Approximate tanker freight rates to Continental ports, in shillings per ton of 2240 pounds, British sterling; to American ports, cents per barrel.)**

| | March 30 | |
|---|---|---|
| | Crude &/or Fuel | Refined Oil &/or Spirits |
| Calif. to U. K. or Continental ports* | 21 | 18 |
| Gulf to U. K. or Continental ports* | 10-11 | †10 |
| North Atlantic to U. K. or Continental ports* | 9/6 | †8/6 |
| Calif. to North Atlantic ports (not E. of N. Y.) | $0.45-$0.50 | $0.45-$0.50 |
| Gulf to North Atlantic ports (not E. of N. Y.)** | 14-15 | 15 |

*Continental ports in the range between Bordeaux and Hamburg, both inclusive. **Venezuela loading same rate, for Tampico 2c to 3c per bbl additional. †Two ports discharged.

# Makes friends for you and profits, too




In this day of highly developed service for the automobile, Dill plays an important part.

For no car can satisfactorily serve its owner without adequate tire maintenance.

Dill specializes on those vital accessories which put air in tires and keep it there.

Every Dill product is designed and built to deliver the utmost in dependability—in protecting that feeling of confidence in tires which is so necessary a part of present day motoring.

This complete modern line of tire valves, and accessories, used by over 90% of all tire manufacturers, and handled by leading jobbers everywhere, has made friends for Dill and for those who serve the motorist. And profits, too.

**THE DILL MANUFACTURING COMPANY**
*Cleveland, Ohio*

Manufactured in Canada by The Dill Manufacturing Company of Canada, Ltd., Toronto, Ontario

**THE DILL COMPLETE MODERN LINE**

- Athletic Ball Valves
- Air Chucks and Fittings
- Dust Caps
- Deflating Caps
- Extensions
- Instant-On Valves
- Instant-On Dust Caps
- Swimming Tube Valves
- Super Pressure Testers
- Super Service Display Board
- Tire Valves—all types
- Tools and Accessories
- Valve Caps
- Valve Insides

# DILL

THE MODERN LINE OF TIRE VALVES

# Tank Wagon, Service Station Markets for Gasoline and Kerosine

*(OIL PRICE HANDBOOK has t.w. and s.s. markets for a whole year, arranged for quick reference)*

These Prices in Effect March 30, 1931, as Posted by Principal Marketing Companies

## S.O.NEW JERSEY TERRITORY

| | | | Gasoline Total | | Oil |
|---|---|---|---|---|---|
| | T.W. | Tax | T.W. | S.S. | T.W. |
| Atlantic City, N. J. | 11.5 | 3 | 14.5 | 16.5 | 11.5 |
| Newark, N. J. | 10.5 | 3 | 13.5 | 15.5 | 10.5 |
| Annapolis, Md. | 12 | 4 | 16 | 17 | 11 |
| Baltimore, Md. | 11.2 | 4 | 15.2 | 16.2 | 9.5 |
| Cumberland, Md. | 13 | 4 | 17 | 18 | 12 |
| Washington, D. C. | 11.7 | 2 | 13.7 | 14.7 | 10.7 |
| Danville, Va. | 12.8 | 5 | 17.8 | 18.8 | 11.8 |
| Norfolk, Va. | 11.3 | 5 | 16.3 | 17.3 | 10 |
| Richmond, Va. | 11.7 | 5 | 16.7 | 17.7 | 10.7 |
| Roanoke, Va. | 13 | 5 | 18 | 17 | 12 |
| Petersburg, Va. | 12.3 | 5 | 17.3 | 18.3 | 11.3 |
| Charleston, W. Va. | 12.5 | 4 | 16.5 | 17.5 | 11.5 |
| Keyser, W. Va. | 13.1 | 4 | 17.1 | 18.1 | 12.1 |
| Parkersburg, W. Va. | 11.2 | 4 | 15.2 | 16.2 | 10.2 |
| Wheeling, W. Va. | 12.4 | 4 | 16.4 | 17.4 | 11.4 |
| Raleigh, N. C. | 13.2 | 5 | 18.2 | 19.2 | 12.2 |
| Charlotte, N. C. | 11 | 5 | 16 | 17 | 11 |
| Mt. Airy, N. C. | 13.5 | 5 | 18.5 | 19.5 | 12.5 |
| Hickory, N. C. | 13.6 | 5 | 18.6 | 19.6 | 12.6 |
| Salisbury, N. C. | 13.5 | 5 | 18.5 | 19 | 12.5 |
| Charleston, S. C. | 11.3 | 6 | 17.3 | 18.3 | 10.3 |
| Columbia, S. C. | 13.2 | 6 | 19.2 | 20.2 | 12.2 |

**Note( 2c per gallon discount off retail t.w. price of gasoline to dealers only thru S. O. New Jersey territory, except Maryland and Washington, D. C. where discount is 3c.**

## S. O. NEW YORK

| | | | Gasoline Total | | Oil |
|---|---|---|---|---|---|
| | T.W. | Tax | T.W. | S.S. | T.W. |
| Greater New York City: Boroughs of Manhattan, Bronx, Queens & Kings | 11.3 | 2 | 13.3 | 15.3 | 10 |
| Borough of Richmond | 11.7 | 2 | 13.7 | 15.7 | 12 |
| Albany, N. Y. | 12.6 | 2 | 14.6 | 16.6 | 9.5 |
| Buffalo, N. Y. | 11.8 | 2 | 13.8 | 15.8 | 9 |
| Rochester, N. Y. | 12 | 2 | 14 | 16 | 9 |
| Syracuse, N. Y. | 12.8 | 2 | 14.8 | 16.8 | 9.5 |
| Boston, Mass. | 11.5 | 2 | 13.5 | 15.5 | 11 |
| Augusta, Me. | 12.8 | 4 | 16.8 | 18.8 | 12.8 |
| Manchester, N. H. | 12.4 | 4 | 16.4 | 18.1 | 11 |
| Burlington, Vt. | 13.3 | 4 | 17.3 | 19.3 | 10 |
| New Haven, Conn. | 12.6 | 2 | 14.6 | 16.6 | 12.6 |
| Providence, R. I. | 10.3 | 2 | 12.3 | 15.7 | 11 |

**Discounts** on gasoline: 2c per gal. off posted t. w price to dealers, thru territory, except 3c to dealers inNew York City, effective Feb. 20, 1931.

## ATLANTIC REFINING

| | | | Gasoline Total | | Oil |
|---|---|---|---|---|---|
| | T.W. | Tax | T.W. | S.S. | T.W. |
| Pittsburgh, Pa. | 12 | * | 12 | 17 | 12 |
| Philadelphia, Pa. | 12 | * | 12 | 17 | 12 |
| Allentown, Pa. | 12 | * | 12 | 17 | 12 |
| Erie, Pa. | 12 | * | 12 | 17 | 12 |
| Scranton, Pa. | 12 | * | 12 | 17 | 12 |
| Altoona, Pa. | 12 | * | 12 | 17 | 12 |
| Dover, Del. | 12 | 3 | 15 | 17 | 12 |
| Wilmington, Del. | 12 | 3 | 15 | 17 | 12 |
| Boston, Mass. | 11.5 | 2 | 13.5 | 15.5 | 10 |
| Springfield, Mass. | 12.5 | 2 | 14.5 | 16.5 | 10 |
| Worcester, Mass. | 12.3 | 2 | 14.3 | 16.3 | 10 |
| Fall River, Mass. | 12.1 | 2 | 14.1 | 15.1 | 10 |
| Providence, R. I. | 11.7 | 2 | 13.7 | 15.7 | 10 |
| Hartford, Conn. | 12.5 | 2 | 14.5 | 16.5 | 10 |
| New Haven, Conn. | 12.6 | 2 | 14.6 | 16.6 | 10 |
| Atlantic City, N. J. | 11.5 | 3 | 14.5 | 16.5 | 11.5 |
| Camden, N. J. | 10.6 | 3 | 13.6 | 15.6 | 10.6 |
| Trenton, N. J. | 11 | 3 | 14 | 16 | 11 |
| Annapolis, Md. | 12 | 4 | 16 | 17 | 11 |
| Baltimore, Md. | 11.2 | 4 | 15.2 | 16.2 | 9.5 |
| Hagerstown, Md. | 12.7 | 4 | 16.7 | 17.7 | 11.7 |
| Richmond, Va. | 11.7 | 5 | 16.7 | 17.7 | 10.7 |
| Wilmington, N. C. | 11.4 | 5 | 16.4 | 17.4 | 10.4 |
| Brunswick, Ga. | 12 | 6 | 18 | 20 | **14 |
| Jacksonville, Fla. | 11 | 6 | 17 | 19 | 12 |

**Note: 2c per gal. discount off t.w. price of gasoline on sales to dealers; discount to commercial accounts under contract for one year in accordance with Code of Ethics.**

*3-cent state tax is collected by retail dealer and paid by him directly to state.

**Georgia kerosine prices include 1c state tax.

## S. O. KENTUCKY

| | | | Gasoline Total | | Oil |
|---|---|---|---|---|---|
| | T.W. | Tax | T.W. | S.S. | T.W. |
| Lexington, Ky. | 12 | 5 | 17 | 18 | 12 |
| Louisville, Ky. | 11 | 5 | 16 | 17 | 11 |
| Paducah, Ky. | 12 | 5 | 17 | 18 | 11 |
| Covington, Ky. | 11 | 5 | 16 | 17 | 11 |
| Jackson, Miss. | 10 | 5 | 15 | 15 | 11.5 |
| Vicksburg, Miss. | 11 | 5 | 16 | 18 | 11.5 |
| Birmingham, Ala.‡‡ | 13 | 4 | 17 | 19 | 13 |
| Mobile, Ala.‡ | 13 | 4 | 17 | 19 | 13 |

## Latest Changes in Tank Wagon Prices

**Gasoline**

**S. O. New Jersey**—S. s. only cut 1c, Roanoke, to 17c, including 5c tax, **March 20.**

**S. O. Ohio**—S. s. only cut 1c, thru Wyandot county, to 16c, including 4c tax, **March 27.** T. w. unchanged at 16c.

**Continental Oil**—S. s. only cut 4c, Salt Lake City, to 17c, including 3.5c tax, **March 23.**

T. W. and s. s. up 1c, Denver, to 15c and 18c respectively, including 4c tax, **March 28.**

**S. O. California** — Wholesale price only cut 2c, Spokane, to 20c, including 3c tax, **March 27.**

| | | | Gasoline Total | | Oil |
|---|---|---|---|---|---|
| | T.W. | Tax | T.W. | S.S. | T.W. |
| Montgomery, Ala.* | 13 | 4 | 17 | 17 | 13.5 |
| Atlanta, Ga. | 12 | 6 | 18 | 20 | *†12.5 |
| Augusta, Ga. | 12 | 6 | 18 | 20 | †15.5 |
| Macon, Ga. | 12 | 6 | 18 | 20 | †13 |
| Savannah, Ga. | 12 | 6 | 18 | 20 | †12 |
| Jacksonville, Fla. | 11 | 6 | 17 | 19 | 12 |
| Miami, Fla. | 12 | 6 | 18 | 20 | 13 |
| Tampa, Fla. | 11 | 6 | 17 | 19 | 12 |
| Pensacola, Fla.** | 12 | 6 | 18 | 20 | 13 |

**Note: Net price of gasoline to dealers is 2c under posted t.w. price thru S. O. Kentucky territory.**

*Local privilege tax of 1 cent on gasoline and ½ cent on kerosine at Montgomery included.

†Georgia kerosine prices include 1c state tax.

**Both tank wagon prices include 1c city tax at Pensacola which went into effect Oct. 15, 1926.

‡Mobile gasoline prices include 1c city tax.

‡‡Birmingham gasoline prices include 1c city tax.

*†3c discount off t.w. price of oil at Atlanta, meeting competition.

## S. O. OHIO

| | | | Gasoline Total | | Oil |
|---|---|---|---|---|---|
| | T.W. | Tax | T.W. | S.S. | T.W. |
| Ohio statewide | 12 | 4 | 16 | 17 | 13 |
| Defiance, Hancock, Marion and Wyandot counties | 12 | 4 | 16 | 16 | 13 |

**Note:** Discount on gasoline to dealers and commercial consumers generally thru Ohio is 2c per gal. off above t.w. prices.

Discount on kerosine to dealers and commercial consumers is 3c per gal. off t.w. price thru Ohio.

## S. O. INDIANA

| | | | Gasoline Total | | Oil |
|---|---|---|---|---|---|
| | T.W. | Tax | T.W. | S.S. | T.W. |
| Chicago, Ill. | 11 | 3 | 14 | 15 | 9 |
| Decatur, Ill. | 11.4 | 3 | 14.4 | 15.4 | 9 |
| E. St. Louis, Ill. | 10.7 | 3 | 13.7 | 14.7 | 8.2 |
| Joliet, Ill. | 11.4 | 3 | 14.4 | 15.4 | 9 |
| Peoria, Ill. | 11.4 | 3 | 14.4 | 15.4 | 9 |
| Quincy, Ill. | 11.2 | 3 | 14.2 | 15.2 | 8.8 |
| Springfield, Ill. | 11.4 | 3 | 14.4 | 15.4 | 9 |
| Indianapolis, Ind. | 11.3 | 4 | 15.3 | 16.3 | 10.1 |
| Evansville, Ind. | 11.1 | 4 | 15.1 | 16.1 | 9.9 |
| South Bend, Ind. | 11.4 | 4 | 15.4 | 16.4 | 10.2 |
| Detroit, Mich. | 11.8 | 3 | 14.8 | 15.8 | 10.7 |
| Grand Rapids, Mich. | 11.7 | 3 | 14.7 | 15.7 | 10.6 |
| Saginaw, Michigan | 11.9 | 3 | 14.9 | 15.9 | 10.8 |
| Green Bay, Wisc. | 11.6 | 2 | 13.6 | 14.6 | 9.4 |
| Madison, Wisc. | 11.3 | 2 | 13.3 | 14.3 | 9.1 |
| Milwaukee, Wisc. | 11.1 | 2 | 13.1 | 14.1 | 8.9 |
| La Crosse, Wisc. | 12.2 | 2 | 14.2 | 15.2 | 10 |
| Minneapolis, Minn. | 12.2 | 3 | 15.2 | 16.2 | 9.9 |
| Duluth, Minn. | 12.5 | 3 | 15.5 | 16.5 | 9.9 |
| Mankato, Minn. | 10.1 | 3 | 13.1 | 16 | 9.7 |
| Des Moines, Ia. | 11.5 | 3 | 14.5 | 15.5 | 9.3 |
| Davenport, Ia. | 11.5 | 3 | 14.5 | 15.5 | 9.3 |
| Sioux City, Ia. | 11.1 | 3 | 14.1 | 15.1 | 8.9 |
| Mason City, Ia. | 11.5 | 3 | 14.5 | 15.5 | 9.3 |
| St. Joseph, Mo. | †11.5 | 2 | 13.5 | 14.5 | 7.5 |
| Kansas City, Mo. | †11.9 | 2 | 13.9 | 14.9 | 7.6 |
| St. Joseph, Mo. | †11.5 | 2 | 13.5 | 14.5 | 8.1 |
| Fargo, N. D. | 13 | 3 | 16 | 16 | 11.9 |
| Grand Forks, N. D. | 14.2 | 3 | 17.2 | 18.2 | 12.2 |
| Minot, N. D. | 13.9 | 3 | 16.9 | 17.9 | 11.9 |
| Pierre, S. D. | 12 | 4 | 16 | 17 | 10.4 |
| Huron, S. D. | 12.3 | 4 | 16.3 | 17.3 | 10.7 |
| Wichita, Kans. | 9.8 | 3 | 12.8 | 13.8 | 7.8 |
| Bartlesville, Okla. | 9.5 | 4 | 13.5 | 16.5 | 7.5 |

S. O. Indiana's quantity contract price schedule thru territory (except in Chicago, which see below) on tank truck deliveries of gasoline, figured from the service station price is 3c for 500 gals. or more a month; and 4½c for 75,000 gals. or more a month.

In Chicago and vicinity, these discounts apply: Over 500 gals. per month, 2c per gal. off service station price; over 1000 gals. per month 4c per gal. off service station price.

*Includes city tax of ½c.

†Includes city tax of 1c.

## S. O. NEBRASKA

| | | | Gasoline Total | | Oil |
|---|---|---|---|---|---|
| | T.W. | Tax | T.W. | S.S. | T.W. |
| Omaha, Neb. | 11.25 | 4 | 15.25 | 17.25 | 9.25 |
| McCook | 12.75 | 4 | 16.75 | 18.75 | 10.75 |
| Norfolk | 11.75 | 4 | 15.75 | 17.25 | 9.75 |
| North Platte | 12.75 | 4 | 16.75 | 18.75 | 10.5 |
| Scottsbluff | 12 | 4 | 16 | 16 | 10.25 |

**Note: Discounts: 1c per gal. off tank wagon price of gasoline for 1,000 gallon dumps per month to consumers taking tank wagon delivery only discount applying only at normal points.**

## S. O. LOUISIANA

| | Posted Retail | | Total Posted Retail | Posted Retail | |
|---|---|---|---|---|---|
| | T.W. | Tax | T.W. | S.S. | T.W. |
| Little Rock, Ark. | 11 | 6 | 17 | 18 | 11 |
| Alexandria, La. | 11 | *6 | 17 | 18 | †12 |
| Baton Rouge, La. | 11 | 5 | 16 | 17 | †12 |
| New Orleans, La. | 11 | *6 | 17 | 18 | †12 |
| Lake Charles, La. | 11 | *6 | 17 | 18 | †12 |
| Shreveport, La. | 11 | 5 | 16 | 17 | †12 |
| Lafayette, La. | 11 | *6 | 17 | 18 | †12 |
| Bristol, Tenn. | 14 | 5 | 19 | 20 | 14 |
| Chattanooga, Tenn. | 13 | 5 | 18 | 19 | 13 |
| Knoxville, Tenn. | 13.5 | 5 | 18.5 | 19.5 | 13.5 |
| Nashville, Tenn. | 12.5 | 5 | 17.5 | 18.5 | 12.5 |
| Memphis, Tenn. | 11 | 5 | 16 | 17 | 11 |

**Note: Discounts in S. O. La. territory: To dealers and commercial consumers from the tankwagon, 2c per gal. off posted retail t.w. price.**

*Lake Charles, Alexandria, New Orleans and Lafayette gasoline tax includes 5c state tax and 1c parish tax. New Orleans kerosine price includes 1c parish tax in addition to 1c state tax.

†Kerosine price in Louisiana includes 1c state tax.

## MAGNOLIA PETROLEUM

| | | | Gasoline Total | | Oil |
|---|---|---|---|---|---|
| | T.W. | Tax | T.W. | S.S. | T.W. |
| Muskogee, Okla. | 8 | 4 | 12 | 15 | 9 |
| Oklahoma City. | 6 | 4 | 10 | 12 | 9 |
| Tulsa, Okla. | 8 | 4 | 12 | 15 | 9 |
| Fort Smith, Ark.† | 11 | 4 | 15 | 16 | 11 |
| Little Rock, Ark. | 11 | 6 | 17 | 18 | 11 |
| Texarkana, Ark.* | 12 | 4 | 16 | 16 | 11 |
| Dallas, Tex. | 11 | 4 | 15 | 18 | 11 |
| Fort Worth, Tex. | 11 | 4 | 15 | 18 | 10 |
| Houston, Tex. | 10 | 4 | 14 | 18 | 11 |
| San Antonio, Tex. | 10 | 4 | 14 | 18 | 10 |
| El Paso, Tex. | 10 | 4 | 14 | 18 | 12 |

*Within city of Texarkana, the state tax on gasoline is 4c per gal. conforming with the Texas state tax. In this district outside of the city the 5c Arkansas tax applies.

†Within city of Fort Smith, Oklahoma tax of 4c applies. In this district outside of the city, the 5c Arkansas tax applies.

Above prices include these inspection fees on both gasoline and kerosine, per gallon: Alabama, 1/40c on gasoline, 1/2c kerosine; Arkansas, 1/20c on both; Florida, 1/8c on both; Illinois, 3/100c on both; Indiana, 2/25c to 1/2c on both; Kansas, 3/50c on both; Louisiana, 1/32c on gasoline; Minnesota, 3/50c on both; Missouri, 1/50c to 1/2c on both; Nebraska 3/100c on both; North Carolina, 1/4c on both; North Dakota, 1/20c on both; Oklahoma, 4/25c on both; South Carolina 1/8c on both; South Dakota, 1/10c on both; Tennessee, 2/5c on gasoline and 1/2c to 4/5c on kerosine; Wisconsin, 1/25c on both.

Kerosine inspection fees only, per gallon; Iowa 7/100c; Michigan, 1/5c to 4/5c per gal.

## Tank Wagon, Service Station Markets for Gasoline and Kerosine

These Prices in Effect March 30, 1931, as Posted by Principal Marketing Companies

### CONTINENTAL OIL

| | Gasoline T.W. | Tax | Total T.W. | S.S. | Oil T.W. |
|---|---|---|---|---|---|
| Denver, Colo. | 11 | 4 | 15 | 18 | 12.5 |
| Pueblo, Colo. | 9 | 4 | 13 | 15 | 12 |
| Grand Junc., Colo. | 14 | 4 | 18 | 19 | 16 |
| Casper, Wyo. | 11 | 4 | 15 | 18 | 10 |
| Cheyenne, Wyo. | 12 | 4 | 16 | 19 | 11.5 |
| Butte, Mont. | 14 | 5 | 19 | 22 | 16 |
| Helena, Mont. | 15 | 5 | 20 | 23 | 16 |
| Salt Lake City, Utah | 14.5 | 3.5 | 18 | 17 | 16 |
| Boise, Ida. | *16.5 | 5 | 21.5 | .. | 18 |
| Twin Falls, Ida. | †16.5 | 5 | 21.5 | .. | 18 |
| Albuquerque, N. M. | 11 | 5 | 16 | 20 | 14 |

*Less 1c on gasoline at time of delivery.
†Less 1.5c on gasoline at time of delivery.

### S. O. CALIFORNIA

| | Tax | Gasoline Tank Truck (Resale) | Posted Wholesale | Oil T.W |
|---|---|---|---|---|
| Phoenix, Ariz. | 5 | 17.5 | 20.5 | 20 |
| Los Angeles, Cal. | 3 | 7.5 | 13.5 | 15.5 |
| Fresno, Cal. | 3 | 9 | 15 | 17 |
| San Francisco, Cal. | 3 | 9 | 15 | 15.5 |
| Reno, Nev. | 4 | 16 | 22 | 19 |
| Portland, Ore. | 4 | 12.5 | 18.5 | 16.5 |
| Seattle, Wash. | 3 | 9 | 15 | 16.5 |
| Spokane, Wash. | 3 | 16 | 20 | 20.5 |
| Tacoma, Wash. | 3 | 9 | 15 | 16.5 |

Note: No discounts off above gasoline prices. Tank truck prices are those to resale trade

### CANADA

(Per Imperial Gallon, which is 1.2 American Gallons)

| | Gasoline T.W. | Tax | Total T.W | S.S | Oil T.W. |
|---|---|---|---|---|---|
| **ONTARIO** | | | | | |
| Toronto | 16 | 5 | 21 | 24.5 | 17 |
| Ottawa | 17 | 5 | 22 | 25.5 | 18 |
| North Bay | 20 | 5 | 25 | 30.5 | 21 |
| Fort William | 19.5 | 5 | 24.5 | 28 | 19.5 |
| Border Cities, including Windsor | 16 | 5 | 21 | 24.5 | 15 |
| **MANITOBA** | | | | | |
| Winnipeg | 18 | 5 | 23 | 27 | 18.5 |
| **SASKATCHEWAN** | | | | | |
| Regina | 22 | 5 | 27 | 31 | 22 |
| **ALBERTA** | | | | | |
| Edmonton | 23 | 5 | 28 | 31.5 | 23 |
| Calgary | 19.5 | 5 | 24.5 | 28 | 19.5 |
| **BRITISH COLUMBIA** | | | | | |
| Vancouver | 21 | 5 | 26 | 28 | 22 |
| **QUEBEC** | | | | | |
| Montreal | 17 | 5 | 22 | 25.5 | 18 |
| Quebec City | 19 | 5 | 24 | 27.5 | 20 |
| Three Rivers | 19 | 5 | 24 | 27.5 | 20 |
| **NEW BRUNSWICK** | | | | | |
| St. John | 18.5 | 5 | 23.5 | 27.5 | 20.5 |
| Moncton | 18.5 | 5 | 23.5 | 27.5 | 20.5 |
| **NOVA SCOTIA** | | | | | |
| Halifax | 18.5 | 5 | 23.5 | 27.5 | 20.5 |
| **PRINCE EDWARD ISLAND** | | | | | |
| Charlottetown | 18.5 | 5 | 23.5 | 27.5 | 20.5 |

Note: In districts surrounding these points 1c additional is added to city price.

### NAPHTHA PRICES

| | Oleum Spirits | V.M.&P. Naphtha | Cleaner Naphtha |
|---|---|---|---|
| Chicago | 10.7 | 12.7 | 14.2 |
| Detroit | 13.4 | 14.9 | 15.7 |
| Kansas City | †11.9 | †13.4 | †14.2 |
| Milwaukee | 12.4 | *15.9 | *16.7 |
| Minneapolis | **16.7 | **18.2 | **19 |
| St. Louis | 11.6 | 13.1 | 13.9 |
| New York | | 14 | 20 |
| Boston | | 17 | 20 |

*Includes 2c state tax. †Includes 1c city tax.
**Includes 3c state tax.

### Petroleum Spirits (Solvent)

| | |
|---|---|
| **Tank Cars (F.o.b. refinery or seaboard terminal)** | |
| New York harbor | 10.00 |
| Philadelphia district | 10.00 |
| Providence | 10.50 |
| **Tank Wagon or Steel Barrels** | |
| New York City | 14 |
| Syracuse | 17 |
| Rochester | 18 |
| Buffalo | 16 |
| Providence | 17 |
| Boston | 17 |
| Bridgeport | 15 |
| Newark | 16 |
| Philadelphia | 14 |
| Lancaster | 17 |
| Altoona | 17 |
| Baltimore | 17 |

Note: 2c off above t.w. prices to large buyers in some instances.

## Aviation Gasoline Prices

Following are tank wagon prices of aviation gasoline in principal marketing territories showing state and municipal taxes:

### S. O. NEW JERSEY

Prices in Effect March 30, 1931

| | T.W. | Tax | Total T.W. |
|---|---|---|---|
| Newark, N. J. | 16.9 | * | 16.9 |
| Baltimore, Md. | 16.2 | 4 | 20.2 |
| Washington, D. C. | 17 | 2 | 19 |

*New Jersey road tax of 3c does not apply on aviation gasoline, exemption being claimed at time of purchase.
All above prices are on Stanavo Aviation Gasoline.

### COLONIAL BEACON OIL CO.

| | | | |
|---|---|---|---|
| New York City | 17.5 | 2 | 19.5 |
| Boston | 17 | 2 | 19 |

### S. O. PENNSYLVANIA

| | | | |
|---|---|---|---|
| Philadelphia, Pa. | 16 | 3 | 19 |
| Pittsburgh, Pa. | 16 | 3 | 19 |
| Altoona, Pa. | 16 | 3 | 19 |

### S. O. OHIO

| | | | |
|---|---|---|---|
| Thru Ohio | 15 | 4 | 19 |

Discounts given by S. O. Ohio: For airport delivery only; 2,000 gals. or over per month, 1c per gal.; 6,000 gals. or over per month, 2c; 12,000 gals. and over per month, 3c; 24,000 gals. and over per month, 4c.

### S. O. INDIANA

| | | | |
|---|---|---|---|
| Chicago | 14 | 3 | 17 |
| Indianapolis, Ind. | 14.3 | 4 | 18.3 |
| Detroit, Mich. | 14.8 | 3 | 17.8 |
| Milwaukee, Wis. | 14.1 | 2 | 16.1 |
| Minneapolis, Minn. | 15.2 | 3 | 18.2 |
| St. Louis, Mo. | 13.4 | 2 | 15.4 |
| Kansas City, Mo. | 13.9 | 2 | 15.9 |
| Fargo, N. D. | 16.9 | 3 | 19.9 |
| Huron, S. D. | 15.3 | 4 | 19.3 |
| Wichita, Kan. | 12.8 | 3 | 15.8 |

In S. O. Indiana territory, buyer pays state and city taxes on aviation gasoline, and if he can get a refund from the state, he does so. Kansas City tax of 3c includes 1c city tax.

### S. O. LOUISIANA

| | | | |
|---|---|---|---|
| New Orleans, La. | 18 | 6 | 24 |
| Nashville, Tenn. | 20 | 5 | 25 |
| Memphis, Tenn. | 19 | 5 | 24 |

2c per gal. discount off above posted retail t.w prices to dealers and commercial consumers.

### S. O. NEBRASKA

| | | | |
|---|---|---|---|
| Omaha | 16.25 | 4 | 20.25 |

4c per gal. refund to reseller.

### CONTINENTAL OIL CO.

| | | | |
|---|---|---|---|
| Denver, Colo. | 13 | 4 | 17 |
| Cheyenne, Wyo. | 17 | 4 | 21 |
| Helena, Mont. | 18 | 5 | 23 |
| Salt Lake City, Utah | 18.5 | 3.5 | 22 |
| Albuquerque, N. M. | 15 | 5 | 20 |
| Boise, Ida. | 20.5 | 5 | 25.5 |

### S. O. CALIFORNIA

| | | | |
|---|---|---|---|
| Phoenix, Ariz. | 17.5 | 4 | 21.5 |
| Los Angeles, Cal. | 16.5 | 3 | 19.5 |
| San Francisco, Cal. | 17 | 3 | 20 |
| Reno, Nev. | 21 | 4 | 25 |
| Portland, Ore. | 17.5 | 4 | 21.5 |
| Seattle, Wash. | 17.5 | 3 | 20.5 |
| Spokane, Wash. | 21.5 | 3 | 24.5 |

Note: 4c per gallon added to t.w. price, in S. O. California territory, to customers taking delivery direct into the fuel tank of planes.

## Dresser Expands Refinery Construction Department

CLEVELAND, March 28.—The Dresser Co. of Cleveland has just completed the erection of an asphalt plant at the No. 1 plant of the Standard Oil Co. of Ohio, here. In addition four Dresser construction crews are at work in the same plant on various jobs of revamping and new building. Four furnaces have been erected for this company since 1927, as well as a large amount of other work.

C. F. Fisher, head of the refinery construction department of the company, has a long and varied experience in refinery construction and operation, and has been with the Dresser people for nearly a dozen years. The recent expansion of the Standard Oil of Kentucky's plant at Latonia was carried out in great measure by Mr. Fisher's organization.

The capacity of this plant has been doubled; the second furnace has been added to the cracking unit, and a new 1200 H. P. boiler added to the three 750 H. P. boilers already installed. A new laboratory-machine shop has been built, two stories 34 x 75 feet, the machine shop on the ground floor and the laboratory above.

The company has erected the largest number of filling and service stations of any engineering company operating in the Ohio district. Filling stations are now being built for the Sun Oil Co. in Cleveland, for the Standard of Pennsylvania in that state, and for several other companies.

The refinery department has been expanding rapidly during the last two or more years, and complete designing, construction, and operating units are active. "We are building refineries and refining units, both from plans developed completely by our own engineers, and from plans and specifications made by the refining company" stated F. J. C. Dresser, president of the company, "we have no cracking or other patented process to sell and our construction work has not slumped appreciably."

# ATTENTION!

**Here's the answer to that problem of—*which is the cheapest*—shipping in Hackney permanent steel barrels or single trip containers.**

**EXAMPLE**

In 1929—"A" Company spent $46,500 for light weight containers which were used to make only one trip.

In 1930—this same company changed to Hackney returnable steel barrels, reducing their costs to $17,260. On the same volume of business which they did in 1929, their costs would have been about $21,576 —making a saving of better than 50%.

This is only one of many examples which show why Hackneys are used by many companies, both large and small—for shipping various liquid and dry bulk materials.

During the past 30 years, Hackney has consulted with a great number of manufacturers in working out the most economical solutions to their shipping problems. This service is open to you, without obligation. It may be the means of making a substantial saving in your shipping costs. Write us today.

**A Few Prominent Hackney Users**

Swift & Co.
Wadhams Oil
Missouri Pacific R. R.
Tanglefoot
Air Reduction Sales
Eastman Kodak
Hercules Powder
Delco Light

*Hackney permanent steel barrels and drums are furnished with full removable heads as shown or with patented raised openings.*

1317 Vanderbilt Concourse Bldg., New York City
1141 Continental Bank Bldg., Chicago

PRESSED STEEL TANK COMPANY

5719 Greenfield Ave., Milwaukee, Wis.
485 Roosevelt Bldg., Los Angeles

**Hackney**
**MILWAUKEE**

# Crude Oil Prices (in Effect March 30, 1931)

*Crude prices for the whole year in OIL PRICE HANDBOOK published annually*

### EASTERN FIELDS

**(Posted by Joseph Seep Purchasing Agency)**

Bradford—Alleghany distr ct (posted by Tide Water Pipe Co., Ltd.) (Effective Nov.12,1930) $2.15
Penna. Grade Oil in National Transit Lines (Effective Nov. 12, 1930) .....*1.85
Penna. Grade Oil in Southwest Penna. Pipe Lines (Effective Nov. 12, 1930) ..... 1.80
Penna. Grade Oil in Eureka Pipe Lines (West Virginia) (Effective Nov. 12, 1930).. 1.70
Penna. Grade Oil in Buckeye Pipe Lines (Macksburg, O.) (Effective Nov. 12, 1930) .1.45
Corning Grade in Buckeye Pipe Lines (Ohio) (Effective March 11, 1931)..... 0.80
Somerset oil in main system of Cumberland Pipe Line (posted by Ashland Refining Co.) (Effective March 6, 1931).....$0.75
Ragland Grade in Cumberland Pipe Lines (Kentucky) (Effective Jan. 9, 1929).....$0.60
*Oil run prior to July 1, 1929 is 5c less per bbl.

**(Posted by Stoll Oil Refining Co.)**

Oil City, Kv., oil in Stoll lines (Effective March 7, 1931).....$0.70

### MICHIGAN

**(Posted by Dixie Oil Co.)**

Traverse and Dundee (Muskegon), effective March 5, 1931, same gravity and price schedule as Stanolind posts in Oklahoma, Kansas and North Texas, which see below.

**(Posted by Pure Oil Co.)**

Midland, Midland County (March 13, 1931)..$0.75

### CENTRAL STATES FIELDS

**Posted by Ohio Oil Co.**

Effective March 6, 1931

| | | | |
|---|---|---|---|
| Wooster | $0.99 | Princeton | $0.80 |
| Lima | 0.90 | Illinois | 0.80 |
| Waterloo | 1.20 | West Kentucky | 0.75 |
| Indiana | 0.50 | | |

### CANADIAN CRUDE

**Posted by Imperial Oil Refineries, Ltd.**

Effective Oct. 28, 1930

Petrolia.....$1.50
Oil Springs..... 1.57

### OKLAHOMA, KANSAS and NORTH TEXAS

**Prices of *Stanolind Crude Oil Purchasing Co. (In Oklahoma, Kansas, North and North Central Texas)**

Effective March 5, 1931

| | | | |
|---|---|---|---|
| Below 29 | $0.43 | 35-35.9 | $0.57 |
| 29-29.9 | 0.45 | 36-36.9 | 0.59 |
| 30-30.9 | 0.47 | 37-37.9 | 0.61 |
| 31-31.9 | 0.49 | 38-38.9 | 0.63 |
| 32-32.9 | 0.51 | 39-39.9 | 0.65 |
| 33-33.9 | 0.53 | 40 and above | 0.67 |
| 34-34.9 | 0.55 | | |

*Prairie Oil & Gas withdrew postings in Oklahoma, Kansas and Texas, Jan. 1, 1931.

On March 5, 1931 these crude purchasers met above prices: Continental Oil Co., Eason Oil Co., Mid-Continent Petroleum Corp., Standard Oil Co. of Kansas, Tidal Refining Co., White Eagle Oil & Refining Co.

On March 10, 1931, these met Stanolind: Humble and The Texas Co.

**Humble Oil & Refining Co.**

Effective March 10, 1931

In North Texas, Ranger, Mexia, Powell, Boggy Creek, Richland, Wortham, Lytton Springs, Currie, Moran and Nocona fields, all in Texas, same prices as Stanolind, which see.

**Magnolia Petroleum Co.**
**(In Oklahoma, Kansas, North, *East and East Central Texas)**

*Effective March 5, 1931

Magnolia posts same prices in all three states as Stanolind, except these lower grades:

| | | | |
|---|---|---|---|
| Below 26 | $0.40 | 27-27.9 | $0.42 |
| 26-26.9 | 0.41 | 28-28.9 | 0.43 |

*Effective March 26, 1931, in East Texas.

**Carter Oil Co.**
**(Oklahoma and Kansas)**

March 10, 1931, same prices as Stanolind, which see.

### PANHANDLE TEXAS

**Humble Oil & Refining Co.**

Effective March 10, 1931

Hutchinson and Carson Counties:

| | | | |
|---|---|---|---|
| Below 35 | $0.38 | 38-38.9 | 0.46 |
| 35-35.9 | 0.40 | 39-39.9 | 0.48 |
| 36-36.9 | 0.42 | 40 and above | 0.50 |
| 37-37.9 | 0.44 | | |

Gray County:

| | | | |
|---|---|---|---|
| Below 35 | $0.43 | 38-38.9 | $0.51 |
| 35-35.9 | 0.45 | 39-39.9 | 0.53 |
| 36-36.9 | 0.47 | 40 and above | 0.55 |
| 37-37.9 | 0.49 | | |

Above prices met by Magnolia and The Texas Co. on March 10 in Hutchinson, Carson and Gray counties.

Wheeler County: Posted by Magnolia Pet. Co. Effective Apr. 10, 1930. Humble withdrew Wheeler county postings Apr. 10, 1930.

| | | | |
|---|---|---|---|
| Below 30 | $0 755 | 37-37.9 | $1.11 |
| 30-30.9 | 0.805 | 38-38.9 | 1.145 |
| 31-31.9 | 0.855 | 39-39.9 | 1.18 |
| 32-32.9 | 0.905 | 40-40.9 | 1.215 |
| 33-33.9 | 0.955 | 41-41.9 | 1.25 |
| 34-34.9 | 1.005 | 42-42.9 | 1.285 |
| 35-35.9 | 1.04 | 43-43.9 | 1.32 |
| 36-36.9 | 1.075 | 44 and above | 1.355 |

### WEST TEXAS and NEW MEXICO

**Humble Oil & Refining Co.**

Effective March 10, 1931

Pecos and Winkler, (West Texas) and Lea County, N. M., all grades.....$0.40
Crane, Upton, Crockett, Ector, Howard and Glasscock Counties, all grades.....$0.35

March 10, 1931, The Texas Co. same prices in Crane, Upton, Winkler and Lea counties as Humble.

Oct. 28, Magnolia same prices in Winkler, Crane, Upton, Howard, Glasscock and Mitchell counties.

### SOUTH and SOUTHWEST TEXAS

**(Posted by Humble Oil & Refining Co.)**

All Effective March 10, 1931

Mirando (Jan. 15, 1931).....$0.69
Salt Flat ..... 0.60
Darst Creek..... 0.60
Pettus, Bee County..... 0.95

**(Posted by Magnolia Petroleum Co.)**

Corsicana Heavy.....$0.45
Luling..... 0.45

**(Posted by The Texas Co.)**

Markham.....$0.50

### NORTH LOUISIANA—ARKANSAS FIELDS

**Prices of Standard Oil Co. of Louisiana**

Caddo, Homer, Haynesville, Bull Bayou, El Dorado, Crichton, De Soto, Sabine, Cotton Valley, Sarepta and Carterville.

Effective March 10, 1931

| | | | |
|---|---|---|---|
| Below 29 | $0.43 | 35-35.9 | $0.57 |
| 29-29.9 | 0.45 | 36-36.9 | 0.59 |
| 30-30.9 | 0.47 | 37-37.9 | 0.61 |
| 31-31.9 | 0.49 | 38-38.9 | 0.63 |
| 32-32.9 | 0.51 | 39-39.9 | 0.65 |
| 33-33.9 | 0.53 | 40 and above | 0.67 |
| 34-34.9 | 0.55 | | |

Smackover, all grades.....$0.45
Bellevue..... 0.45
*Urania, La. (Oct. 30, 1930)..... 0.75
†East El Dorado (Calion)..... 0.45

*Posted by Louisiana Oil Refining Corp.
†Posted by Magnolia Petroleum Co.

March 10, 1931, The Texas Co. same schedule in Louisiana as Standard.

March 10, Magnolia met Standard schedule in Louisiana-Arkansas fields except it posts the same low grades in La.-Ark. as in Mid-Continent.

**Stephens, Arkansas**
**Louisiana Oil Refining Corp., and Atlantic Oil Producing Co.**

Effective March 10, 1931

Below 29.....$0.38 29 and above...$0.41

### GULF COASTAL

**Posted by Humble Oil & Refining Co.**

Effective Jan. 14, 1931

| | | | |
|---|---|---|---|
| Grades A | $0.80 | 32-32.9 | $0.85 |
| Grades B: | | 33-33.9 | 0.87 |
| Below 25 | 0.69 | 34-34.9 | 0.89 |
| 25-25.9 | 0.71 | 35-35.9 | 0.91 |
| 26-26.9 | 0.73 | 36-36.9 | 0.93 |
| 27-27.9 | 0.75 | 37-37.9 | 0.95 |
| 28-28.9 | 0.77 | 38-38.9 | 0.97 |
| 29-29.9 | 0.79 | 39-39.9 | 0.99 |
| 30-30.9 | 0.81 | 40 and above | 1.01 |
| 31-31.9 | 0.83 | | |

On Oct. 28, The Texas Co. posted same prices on Grades A and B Gulf Coast crude as Humble.

Fields classified as A and B are Spindletop, Goose Creek, Hull, Liberty, Sour Lake, West Columbia, Orange, Boling, Humble, Pierce Junction, Sugarland, Refugio county, and Raccoon Bend. All other fields are Grades A only.

Specifications for Grade "A" crude: Gravity: 25° and below, at 60° F. Viscosity: not less than 100 seconds at 100° F. Saybolt.
Sulfur: not over .4%.
Grade "B" includes all Coastal crude which does not meet the test for "A" grades.

## Crude Price Changes

DALLAS.—On March 26 Magnolia Petroleum Co. posted for East Texas crude the same gravity and price schedule as it posts in Oklahoma and other Mid-Continent fields. This is the first official posting of prices in the Rusk-Gregg area of East Texas among the major purchasers.

Magnolia's minimum grade is below 26 gravity, which is 40 cents; 26-26.9, 41 cents; 27-27.9, 42 cents; 28-28.9, 43 cents. A 2 cent differential for each succeeding degree of gravity applies from 29 gravity on, up to maximum grade of 40 and above, which is 67 cents per barrel.

LOS ANGELES.—On March 30 Union Oil Co. of California cut all light gravity crude in California, while heavy grades remained unchanged, posting higher prices for heavy oils, and lower prices for higher gravities.

Prices in Los Angeles basin fields range from a top price of 65 cents for 14 to 20 gravity crude; while each succeeding degree of gravity, up to maximum grade of 30 gravity, takes 3 cents less, making that grade 35 cents per barrel.

Prices in San Joaquin Valley fields range from a top price of 55 cents for 14 to 19.9 gravity, with a 2-cent decrease for each succeeding degree of gravity, making maximum grade of 29 gravity, 35 cents per barrel.

---

TULSA, March 28.—Black Gold Refining Co., of Oklahoma City, will double the capacity of its refinery which is located in the Oklahoma City field, it is announced by D. A. Corcoran, president. The plant now has a capacity of 1000 barrels daily, but has operated at a lower figure for several months.

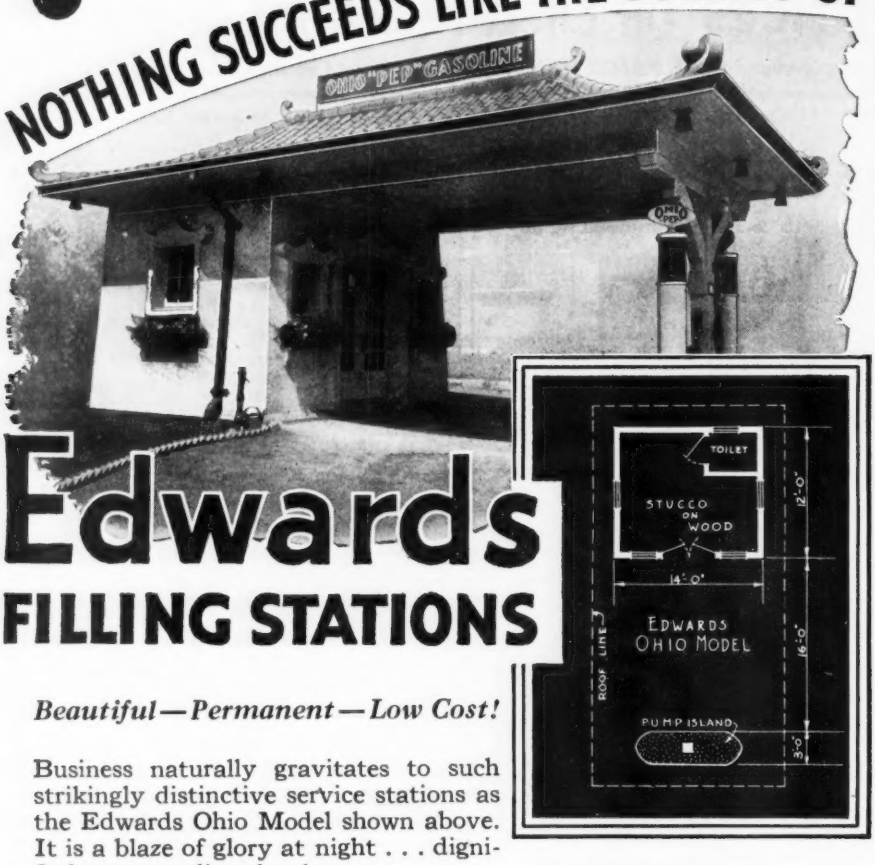
---

TULSA, March 27.—Continental Oil Co. has authorized addition of a high pressure still at its Florence, Colo., refinery.

---

TULSA, March 28.—A 250-barrel capacity refinery which will operate on crude oil produced in the immediate area will be built at Archer City, Tex., by Will Young. Crude will be gathered from wells which now have no pipeline outlet and hauled to the refinery by tank truck. Claude Semm, of Wichita Falls, recently employed at the Gulf Refining Co.'s plant at Sweetwater, Tex., will be in charge of the refinery.

# NOTHING SUCCEEDS LIKE THE SUCCESS OF




# Edwards
## FILLING STATIONS




*Beautiful—Permanent—Low Cost!*

Business naturally gravitates to such strikingly distinctive service stations as the Edwards Ohio Model shown above. It is a blaze of glory at night . . . dignified, commanding, by day.

This is but one of the many Edwards Metal Filling Stations, planned by our architects and engineers to produce the greatest dollar value in building and lot space.

These men are at your service. Put their thirty years of practical, specialized knowledge to work for you . . . without cost. Just send lot dimensions and requirements. Write today.

**EDWARDS METAL SPANISH TILE ROOFING**

. . . is the crowning oriental touch to the beautiful Ohio Model shown above. The most beautiful roofing available for every type of structure, ideal for impressive architectural effects, on buildings, canopies, pump shelters, etc. Get our prices.

**THE EDWARDS MANUFACTURING CO.**

524-544 Eggleston Ave. Cincinnati, Ohio

*We also manufacture Garages, Hangars, Parking Lot Buildings and complete line of Sheet Metal Building Materials.*



# PETROLEUM PRODUCTS

Gasoline — Natural Gasoline — Naphtha — Kerosene
Distillate — Furnace Oil — Gas Oil — Fuel Oil — Crude Oil
Lubricating Oils Special Anti-Knock Gasoline

10 YEARS SERVICE

*Phone - Wire - Write*

**UNION OIL PRODUCTS COMPANY, INC.**
LD 71 Panhandle Building
WICHITA FALLS, TEXAS

*Producers* *Refiners* *Marketers* *Transporters*



# The Law of Chemical Patents

"THE Law of Chemical Patents" by Edward Thomas, is written for the man who is interested first in what a patent shows on its face; what its relation is to the prior art; and what its relation is to possible infringements.

The book tells what has been said in the courts on every phase of the subject. For example it cites *what the Courts have said on:*

Nature of a Patent; Disclosure in a Chemical Patent; the invention, its date and nature; nature of a patentable process; anticipation by prior uses; by prior publication; Nature of a Valid process claim in the patent; infringement of valid process claim; Permissible amendments; amending patent after it issues; double patenting and the joinder of inventions; assignments, licenses and royalties; contests between rival claimants; patent suits and patent evidence and some other more minor subheads.

Actions taken in courts are cited with complete references to the legal documents involved, with quotations of the statements pertinent to the subject under discussion. Each chapter is introduced with a brief outline of the subject, and the remainder is devoted to quotations which definitely answer questions on which information should be available to those holding patents or about to apply for them.

The present complicated situation with regard to patents on refining processes, especially cracking, makes this book particularly valuable to every refiner, oil attorney, chemist, etc. 420 pages.

———*Clip and Mail*———

**NATIONAL PETROLEUM NEWS**

**Penton Bldg., Cleveland, Ohio**

Send me at once "The Law of Chemical Patents" by Edward Thomas.

Enclosed is $6.00.

Name.....

Address.....

City.....

# Crude Oil Prices (in Effect March 30, 1931)

(Prices are per barrel at the well)

***(Crude Oil Prices for the whole year in OIL PRICE HANDBOOK published annually)***

**ROCKY MOUNTAIN FIELDS**
**(Posted by Midwest Refining Co.)**
(Salt Creek prices effective March 5, 1931)

| | | |
|---|---|---|
| Salt Creek, below 29° | | $0.43 |
| " " " | 29-29.9 | 0.45 |
| " " " | 30-30.9 | 0.47 |
| " " " | 31-31.9 | 0.49 |
| " " " | 32-32.9 | 0.51 |
| " " " | 33-33.9 | 0.53 |
| " " " | 34-34.9 | 0.55 |
| Salt Creek | 35-35.9 | 0.57 |
| " " | 36-36.9 | 0.59 |
| " " | 37 and above | 0.61 |

**(Posted by Ohio Oil Co. and Midwest Refining Co.)**

| | |
|---|---|
| Elk Basin | $0.90 |
| Grass Creek light | 0.90 |
| Big Muddy | 0.65 |
| Lance Creek | 0.98 |
| Rock Creek | 0.66 |
| Mule Creek | 1.20 |
| Rex Lake | 1.10 |
| Pondera | 1.45 |
| †Osage | 0.50 |
| †Cat Creek, Mont. | 0.90 |
| Sunburst, Mont. | 1.55 |
| †Hogback, N. Mex. (March 7, 1931) | 1.05 |

†Posted by Midwest Refining Co. Midwest also buys Grass Creek light and Elk Basin. Others are prices of Ohio Oil Co.

**CALIFORNIA CRUDE**
**Standard Oil Co. of California**

Effective March 20, 1931

| Gravity | Signal Hill, Seal Beach, Alamitos Heights, Huntington Beach, Inglewood, Olinda-Brea Canon, Athens-Rosecrans-Dominguez, Torrance, Richfield, Whittier, LaHabra, Montebello, Coyote Hills and Santa Fe Springs | Playa Del Rey | Elwood Terrace | Newhall, McKittrick, Kern River, Midway-Sunset, Elk Hills, Buena Vista Hills, Lost Hills, Coalinga and Wheeler Ridge |
|---|---|---|---|---|
| 14-19.9 | $0.65 | $0.56 | F.O.B. Ship | $0.55 |
| 20-24.9 | .66 | .57 | | .56 |
| 25-29.9 | .67 | † | | .57 |
| 30-34.9 | .68 | | *$0.68 | .58 |
| 35-39.9 | .69 | | .69 | |
| 40-40.9 | .70 | | .70 | |

*Beginning with 34-34.9 gravity.
†Subject to field gathering charge of 5c per barrel.

**Posted by Union Oil Co. of California**
(Effective March 30, 1931)

| | Los Angeles Basin Fields | San Joaquin Valley Fields |
|---|---|---|
| 14-19.9 | $0.65 | $0.55 |
| 20-20.9 | .65 | .53 |
| 21-21.9 | .62 | .51 |
| 22-22.9 | .59 | .49 |
| 23-23.9 | .56 | .47 |
| 24-24.9 | .53 | .45 |
| 25-25.9 | .50 | .43 |
| 26-26.9 | .47 | .41 |
| 27-27.9 | .44 | .39 |
| 28-28.9 | .41 | .37 |
| 29-29.9 | .38 | .35 |
| 30 and over | .35 | ... |

# REFINERS' and COMPOUNDERS' SUPPLIES

Following are average market prices for materials used by refiners and compounders effective on the date shown.

**Refiners' Supplies**

| | March 30 | March 23 |
|---|---|---|
| Soda Ash Light 58% bags, cwt. | $1.20-1.38 | $1.20-1.38 |
| Silicate of Soda 60 deg. drums, cwt. | $1.75-1.90 | $1.75-1.90 |
| Silicate of Soda 40 deg. tank cars, cwt. | $0.70 | $0.70 |
| Silicate of Soda 40 deg. drums, cwt. | $1.00 | $1.00 |
| Sal Soda wks. | $0.90-1.20 | $0.90-1.20 |
| Caustic Soda 76% solid, cwt. | $2.25-2.50 | $2.25-2.50 |
| Sulfuric Acid 60 deg. tank cars, f. o. b. shipping point per ton | $11.00-12.50 | $11.00-12.50 |
| Sulfur, flowers of, cwt. | $3.10-4.00 | $3.10-4.00 |
| Liquid Chlorine, tank cars, wks, lb. | 1.75 | 1.75 |

**Compounders' Supplies**

| | March 30 | March 23 |
|---|---|---|
| **Vegetable Oils** | | |
| Linseed carloads, spot, lb. | 9.40 | 9.40 |
| Tanks, spot | 8.80 | 8.80 |
| Soya Bean, Tank, coast, lb. | 7.10 | 7.10 |
| **Oleic Acid** | | |
| Distilled, tanks, lb. | 7.50 | 7.50 |
| Distilled, bbls, lb. | 8.375 | 8.375 |
| Saponified, tanks, lb. | 7.75 | 7.75 |
| Saponified, bbls, lb. | 8.625 | 8.625 |
| **Lard Oils** | | |
| Prime Winter Strained, lb. | 12.75 | 12.50 |
| Extra Winter Strained, lb. | 9.50 | 9.50 |
| Extra, lb. | 9.25 | 9.25 |
| Extra No. 1, lb. | 8.75 | 8.75 |
| No. 1, lb. | 8.50 | 8.50 |
| No. 2, lb. | 8.25 | 8.25 |
| Tallow oil, lb. | 8.00 | 8.00 |
| **Neatsfoot Oil** | | |
| Pure, bbls, lb. | 11.00 | 11.00 |
| Extra, bbls, lb. | 9.00 | 9.00 |
| No. 1 bbls, lb. | 8.75 | 8.75 |
| Cold Pressed, lb. | 15.50 | 15.25 |
| **Fish Oils** | | |
| Menhaden Oil | | |
| Light Pressed, gal. | 38–40 | 36–38 |
| Light Pressed, tank cars, N. Y., gal. | 30–32 | 28–30 |
| Yellow bleached, gal. | 42 | 39 |
| Whale, extra winter bleached, gal. | 80 | 80 |
| **Naval Stores** | | |
| Steam, distilled turpentine, N. Y., gal. | 51 | 42 |
| Steam, distilled turpentine, Savannah, gal. | 49 | 40 |
| Gum turpentine, N. Y., gal. | 54-56 | 42.50-43.50 |
| Gum turpentine, f. o. b. cars Savannah, gal. | 48-50 | 37.50-38.50 |
| Wood Rosin, N. Y., bbl. | $5.30 | $5.20 |
| Wood Rosin F, Savn'h, bbl. | $5.20 | $5.50 |
| Gum Rosin B, N. Y., bbl. | $4.80 | $4.80 |
| Gum Rosin B, f. o. b. cars Savannah, bbl. | $4.05 | $4.05 |
| Rosin oil, pure, gal. | 54 | 54 |
| Rosin, oil, compounded, gal. | 48 | 48 |
| **Pine Tar** | | |
| Kiln burnt, bbl. | $13.00-14.00 | $13.00-14.00 |
| Retort, bbl. | $13.50-14.50 | $13.50-14.50 |
| **Alcohol** | | |
| Denatured Formula 5, in tanks, per gal. | 22–24 | 46–48 |

## Must Pay Domestic Rate On Lost Gasoline

WASHINGTON, March 30.—Recommendation that the Interstate Commerce Commission dismiss a complaint by the Gulf States Terminal & Transport Co. of Tulsa, alleging that it is unfair for the railroads to charge domestic rates on gasoline shipped for export but lost by evaporation before loading into boats, has been made by Examiner Konigsberg.

The terminal company shipped 11,800,000 gallons of gasoline to New Orleans from Wichita Falls, Tex., El Dorado, Ark., Shreveport, La. and Blackwell, Okla. and paid the export rates. The gasoline was shipped between February and June, 1927. In 1930 the railroad company sued the terminal company for domestic rates on 600,000 gallons because the terminal company could not show, by 600,000 gallons, that it had exported the 11,800,000 gallons.

Unless export billing could be shown for the whole amount, domestic rates, the railroad claimed, would have to be paid on the difference between the amount brought in on export rates and the amount sent out by vessel. That difference was 600,000 gallons, which the terminal company said had disappeared from the export tanks because it was impossible to present evaporation losses.

The recommendation for dismissal was made on grounds that the Gulf States failed to make a sufficient case to prove its losses and for the further reason that the suit was not filed within the 90-day period provided by law.

# OIL STOCKS AND FINANCES

## Fall in Inventory Values Cuts Hole In Continental Profits

CLEVELAND, March 30

ADJUSTMENT of oil inventory values to cost or market value of oil, whichever was lower, cut a $4,198,723 hole in the net income of $4,483,425 of the Continental Oil Co. of Delaware and subsidiary companies in 1930. After deduction of minority interests' share in net income Continental had remaining $255,598, compared with $9,028,660.71 in 1929.

Continental's 1930 net earnings averaged approximately 5 cents a share on the 4,694,062 shares outstanding at the end of 1930, compared with an average of $190 a share in 1929. The 1929 earnings figure contains the earnings of the Continental Oil Co. of Maine, headquarters in Denver, for only the second half of 1929, earnings for the first half having been taken over as assets by Marland Oil Co., July 1, 1929. After the Maine company was taken over, Marland changed its name to Continental and incorporated in Delaware.

Continental of Delaware spent $19,084,844.82 on property last year as compared with $22,310,664.09 in 1929. Its largest expenditure last year, the Dec. 31 balance sheet indicated, was in the marketing division. This shows a gain of almost $4,000,000.

"The company limited its construction and acquisition of marketing outlets to points that offered a reasonable and assured return," D. J. Moran, president, wrote stockholders. "In many instances, they simply represented conversion of uncontrolled outlets to controlled."

Continental invested $1,728,946 in the Great Lakes Pipe Line Co., which was organized last July to build a gasoline pipeline from the Mid-Continent to Chicago and other cities of the Great Lakes and Middle West areas. Five other companies are participating in this line.

Its most important crude line expansion was a line from the Oklahoma City pool to Ponca City.

Refinery expansion included the building of a 1500-barrel pipe still and cracking plant at Denver and the buying of complete interest in small refineries at Lewiston, Mont., and Albuquerque, N. M. Continental had been marketing the output of these two refineries, Mr. Moran wrote. Continental now has 11 refineries.

Continental co-operated in all attempts at proration last year, Mr. Moran reported. His company's crude recovery last year averaged approximately 8000 barrels gross daily less than in 1929 and almost 6000 barrels net daily less. He gave these operating result totals:

| | 1930 | 1929 |
|---|---|---|
| Gross crude prod. | 32,787,303 | 35,636,726 |
| Net crude prod. | 21,159,187 | 23,252,648 |
| Gross daily average | 89,828 | 97,635 |
| Net daily average | 57,970 | 63,706 |
| Pipe line runs of crude | 16,644,438 | 16,392,971 |
| Refinery crude runs | 12,059,212 | 9,893,448 |
| Crude inven. Dec. 31 | 10,944,598 | 11,902,546 |
| Refined oil inventory Dec. 31 | 3,874,677 | 3,717,427 |
| Sales of crude oil | 17,888,286 | 18,889,849 |
| Sales of refined products | 14,020,836 | 10,960,684 |
| Sales of natural gas (M cu. ft.) | 10,514,831 | 10,160,406 |

Continental last year retired $15,706,668 of its funded and long term debts. This caused a decline of $8,500,000 in its quick assets.

Current assets Dec. 31 totaled $44,050,219 and current liabilities $6,459,993, a ratio of 6.82 to 1. Cash amounted to $10,173,761 and U. S. securities to $3,212,687, their sum being approximately twice the amount of current liabilities.

Fixed assets Dec. 31 were carried on the books at $247,047,049, against which reserves of $140,453,488 had been set up. Net valuation of fixed assets was $106,593,561. Total assets after all reserves were $179,494,715, Dec. 31, compared with $197,322,145, Dec. 31, 1929.

The oil inventory Dec. 31 was carried at $22,652,985, compared with $29,991,328 a year before.

### Revisions to Accounting System

NEW YORK—The American Petroleum Institute has published a booklet of revisions to the "Uniform System of Accounts for the Oil Industry" adopted by its directors. The corrections have been printed so that they may be clipped and pasted in proper places in the institute Bulletin of Dec. 31, 1929, containing the General Balance Sheet and Chart of Accounts.

## Crawford is New Head Of Long Oil Co.

TULSA, March 28.—L. R. Crawford, vice-president of the Producers & Refiners Corp., was elected, March 24, president of the Long Oil Co., Manhattan, Kans., control of which recently was bought by the Prairie Oil & Gas Co. Mr. Crawford succeeds A. W. Long, founder of the company. Long Oil Co. owns a number of retail and bulk stations in central Kansas.

C. T. Smith, vice-president and general manager, was re-elected and will continue in active charge of the company. A. T. Smith and P. C. Spencer, of the Prairie, were elected directors.

### Nall Opens Chicago Office

CHICAGO—Elmer Nall, who sells Oildraulic lifts and other super service station equipment in the Chicago area has opened an office at 1202 Buckingham Bldg., 59 E. Van Buren St., Chicago.

## Consolidated Income Accounts of Continental Oil Co. and Subsidiaries

| | 1930 | 1929 |
|---|---|---|
| Gross operating income | $90,430,897.87 | $81,893,796.84 |
| Merchandise costs | 34,030,417.92 | 23,923,910.63 |
| Operating, administrative expenses | 34,684,735.62 | 28,807,001.69 |
| *Taxes | 1,767,859.36 | 1,133,542.75 |
| Net operating income | $19,947,884.97 | $28,029,341.77 |
| Equity in earnings of controlled companies not consolidated—net | 1,220,060.62 | 1,317,010.35 |
| Dividends, interest received | 1,600,927.36 | 1,858,439.76 |
| Income before reserves | $22,768,872.95 | $31,204,791.88 |
| Intangible development costs | 5,079,902.97 | 8,236,512.79 |
| Depletion, lease amortization | 3,247,879.09 | 4,149,883.77 |
| Depreciation | 8,046,182.15 | 7,878,429.60 |
| Income before interest | $6,394,908.74 | $10,939,965.72 |
| Interest, discount on funded debt | 1,767,121.94 | 1,760,717.88 |
| Other interest | 144,361.80 | 125,428.28 |
| Income before inventory adjustment | $4,483,425.00 | $9,053,819.56 |
| Inventory adjust. to cost or market | 4,198,772.87 | ..... |
| Net income | $284,652.13 | $9,053,819.56 |
| Minority interests | 29,054.13 | 25,158.85 |
| Net to Continental | $255,598.00 | $9,028,660.71 |

*Does not include $9,726,324.31 gasoline taxes paid or accrued in 1930.

# SKILLED SUPERVISION

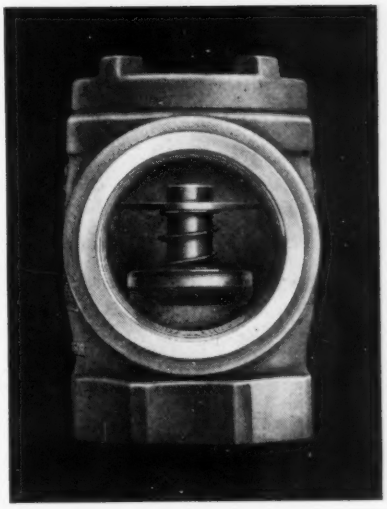
## *Guarantees the Quality of Gulf Products*

COASTAL AND PARAFFINE CRUDES
GASOLINE—LUBRICATING OILS
NAPHTHA—GAS—OILS
WAX—PETROLEUM COKE
CYLINDER—ENGINE—CORDAGE

## Gulf Refining Company

*General Sales Offices:*
PITTSBURGH, PA.

*District Sales Offices:* New York, Boston, Philadelphia, Louisville, Atlanta, Houston, New Orleans



# Absolutely drop-tight, and positive in operation

**UNIQUE features in Jenkins Gasoline Foot and Angle Check Valves assure unfailingly drop-tight performance. The disc is always in perfect alignment. It is especially compounded to resist gasoline.**

**When the suction pipe is fitted with a Jenkins Valve, the pump is kept always primed for instant correct delivery. The reliability of Jenkins Valves saves costly excavation for repair or replacement.**

**Write for Form 146 giving full details about Jenkins Gasoline Foot and Angle Check Valves.**

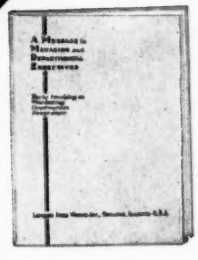
**JENKINS BROS.**
**80 White St. New York, N. Y.**

*Fig. 882. Jenkins Bronze Angle Check Valve*
*Fig. 881. Jenkins Iron Body Angle Check Valve*

*Fig. 880. Jenkins Bronze Foot Valve*

**JENKINS**
*absolutely drop-tight*
**GASOLINE FOOT VALVES & ANGLE CHECK VALVES**

## *You Should Have These!*



←—A Message to Managing and Departmental Executives.

Bulletin 102-T—Bulk Plant Equipment. ——→

Every Oil Man owes it to himself to get acquainted with the Leader plan of furnishing Bulk Plants—one or fifty or a hundred. Send for these Bulletins and learn how you can simplify your construction problems.

**LEADER IRON WORKS, INC.**
2112 NORTH JASPER STREET, DECATUR, ILLINOIS

# Transactions in Oil Shares on New York Stock Exchange

| 1929 High | 1929 Low | 1930 High | 1930 Low | Listed Shares | Par Value | Company | Div. Rate | Last Paid | Transactions Week Ended March 28 Sales | First | High | Low | Last | Change§ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 42⅝ | 17½ | 42¼ | 16½ | 922,075 | N.P. | Amerada Corp. | 50cQ | Jan. 30, 31 | 9,300 | 21½ | 22 | 19½ | 19½ | — 2⅜ |
| 64¾ | 12½ | 37 | 5⅛ | 209,180 | N.P. | American Republics Corp. | .... | ..... | 9,100 | 11 | 11⅛ | 8½ | 8½ | — 2½ |
| 47¼ | 34½ | 51 | 30 | 2,240,000 | $25 | Associated Oil. | 50cQ | Mar. 31, 31 | ..... | .... | .... | .... | .... | ..... |
| 77⅞ | 30 | 51¾ | 16⅝ | 2,683,868 | 25 | Atlantic Refining Co. | 25cQ | Mar. 16, 31 | 15,800 | 19½ | 20½ | 18¾ | 18¾ | — ¾ |
| 49⅛ | 20 | 34 | 8⅝ | 2,257,108 | 25 | Barnsdall Corp. A. | 25cQ | Feb. 16, 31 | 13,900 | 12 | 12⅜ | 11⅜ | 11½ | — ¾ |
| 34½ | 25 | 35 | 21 | 2,060,966 | 25 | California Petroleum Corp. | .... | Jan. 1, 29 | ..... | .... | .... | .... | .... | ..... |
| 32⅞ | 12½ | 20⅜ | 8¾ | 1,444,970 | N.P. | Colonial Beacon Oil Co. | .... | ..... | 1,100 | 9 | 9 | 9 | 9 | 0 |
| 37¾ | 18 | 30½ | 7¾ | 4,610,258 | N.P. | Continental Oil (Delaware) | .... | ..... | 25,700 | 9½ | 10 | 9⅛ | 9⅛ | — ½ |
| 94¾ | 42¼ | 71⅛ | 22⅜ | 410,857 | $100 | General Asphalt Co. | 75cQ | Mar. 16, 31 | 69,100 | 41 | 47 | 41 | 42 | — 1½ |
| 109 | 26 | 116⅞ | 29¼ | 250,000 | 100 | Houston Oil. | .... | ..... | 54,100 | 57 | 62½ | 53 | 54⅛ | — 2¾ |
| .. | .. | 10¼ | 6⅝ | ..... | .. | Houston Oil, new. | .... | ..... | 51,900 | 12¼ | 14⅛ | 11¾ | 11⅞ | — ⅝ |
| 53 | 13⅛ | 28⅝ | 3 | 699,066 | 10 | Indian Refining. | .... | Dec. 15, 20 | 1,900 | 4 | 4 | 3⅝ | 3⅝ | — ⅜ |
| 51¼ | 11½ | 27⅜ | 3½ | 568,816 | 10 | do certificates. | .... | ..... | ..... | .... | .... | .... | .... | ..... |
| 38⅜ | 16½ | 29½ | 21¼ | 3,994,150 | N.P. | Lago Oil & Transport. | .... | Aug. 2, 27 | ..... | .... | .... | .... | .... | ..... |
| 18 | 7 | 12 | 3½ | 1,187,701 | N.P. | Louisiana Oil Refining. | ..... | ..... | 600 | .... | 4⅛ | 4 | 4 | 0 |
| 100¼ | 80 | 89½ | 60 | 40,000 | $100 | do pfd. | $1.62½Q | Feb. 14, 31 | ..... | .... | .... | .... | .... | ..... |
| 18½ | 5⅞ | 10⅝ | 1¾ | 330,000 | N.P. | Maracaibo Oil Exploration. | ..... | ..... | ..... | .... | .... | ..... | .... | ..... |
| 295 | 176 | 182 | 150 | 459,428 | $100 | Mexican Petroleum. | $3Q | Jan. 20, 31 | ..... | .... | .... | .... | .... | ..... |
| 105 | 102 | 100 | 100 | 120,000 | 100 | do pfd. | $2Q | Jan. 20, 31 | ..... | .... | .... | .... | .... | ..... |
| 69⅛ | 9¼ | 37 | 9¾ | 1,244,383 | N.P. | Mexican Seaboard Oil. | .... | Oct. 15, 24 | 97,000 | 18½ | 19¾ | 16⅝ | 16⅝ | — 1⅞ |
| 39⅞ | 22⅛ | 33 | 11 | 1,899,138 | N.P. | Mid-Continent Petroleum. | 50cQ | Feb. 16, 31 | 5,300 | 12¾ | 13 | 12⅜ | 12½ | — ¼ |
| 3⅝ | ¾ | 2½ | ¾ | 908,171 | N.P. | Middle States Oil ctfs. | .... | ..... | ..... | .... | .... | .... | .... | ..... |
| .. | .. | 32 | 16 | 6,708,086 | N.P. | Ohio Oil Co. | 25cQ | Mar. 14, 31 | 29,700 | 15 | 15⅛ | 13⅜ | 13⅜ | — 1⅜ |
| 69 | 40¼ | 64¼ | 42 | 1,000,000 | $50 | Pan American Petrol. & Trans. | .... | Oct. 20, 27 | ..... | .... | .... | .... | .... | ..... |
| 69¼ | 40½ | 67½ | 32 | 2,422,221 | 50 | do B. | .... | Oct. 20, 27 | 2,100 | 34⅞ | 35⅛ | 33 | 33 | — 2 |
| 15¼ | 3 | 12¾ | 1¾ | 199,370 | N.P. | Panhandle Prod. & Refg. | .... | ..... | 1,800 | 2⅞ | 3⅞ | 2½ | 2½ | — ½ |
| 76 | 47½ | 80 | 47½ | 25,666 | $100 | do pfd. | .... | July 2, 23 | ..... | .... | .... | .... | .... | ..... |
| .. | .. | 27½ | 6 | 2,937,900 | N.P. | Petroleum Corp. of America. | 37½cQ | Dec. 31, 30 | 5,100 | 8⅝ | 9 | 8¼ | 8¼ | — ⅜ |
| 47 | 24¼ | 44¾ | 12 | 2,670,089 | N.P. | Phillips Petroleum Co. | 50cQ | Jan. 2, 31 | 34,750 | 11¾ | 12¼ | 11 | 11⅛ | — ⅞ |
| 3⅛ | 1 | 2½ | ½ | 1,184,917 | $25 | Pierce Oil Corp. | .... | ..... | 1,200 | 1 | 1 | ⅞ | ¾ | — ⅛ |
| 51½ | 20 | 52 | 7½ | 150,000 | 100 | do pfd. | .... | Feb. 1, 22 | 1,000 | 14¾ | 14¾ | 13¼ | 13¼ | — 2¼ |
| 5⅞ | ½ | 7⅛ | 1⅜ | 2,500,000 | N.P. | Pierce Petroleum Corp. | 10c | Feb. 16, 31 | 1,500 | 2¾ | 2¾ | 2¼ | 2½ | — ⅛ |
| 65⅜ | 40½ | 54 | 11¼ | 2,435,670 | $25 | Prairie Oil & Gas Co. | 50cQ | Mar. 31, 31 | 5,900 | 15¼ | 15¼ | 14½ | 14½ | — ½ |
| 65 | 45 | 60 | 16⅜ | 4,050,000 | 25 | Prairie Pipe Line Co. | 75cQ | Mar. 31, 31 | 13,900 | 22½ | 22⅜ | 21 | 21 | — 1 |
| 25⅞ | 4 | 31 | 1 | 749,017 | 50 | Producers & Refiners Corp. | .... | Sept. 15, 23 | 800 | 3¾ | 3⅞ | 3½ | 3½ | — ⅛ |
| 46¾ | 25½ | 38 | 11½ | 56,907 | 50 | do pfd. | .... | May 4, 25 | 60 | .... | 14¾ | 13½ | 14¾ | + ¾ |
| 30¾ | 20 | 27¼ | 7⅝ | 3,038,370 | 25 | Pure Oil Co. | .... | Sept. 1, 30 | 1,800 | 8⅞ | 9¼ | 8⅞ | 9 | — ¼ |
| 116 | 108 | 114¼ | 90½ | 130,000 | 100 | do 8% pfd. | $2Q | Apr. 1, 31 | 350 | .... | 94⅝ | 90¾ | 93 | — ⅝ |
| 49⅜ | 22⅝ | 28¼ | 4⅛ | 2,891,735 | 25 | Richfield Oil (California) | .... | Sept. 1, 30 | 11,700 | 4¼ | 4¼ | 2¾ | 2⅞ | — 1½ |
| 42½ | 15 | 25¾ | 5 | 1,235,270 | N.P. | Rio Grande Oil Co. | .... | July 25, 30 | 9,000 | 7⅜ | 8⅝ | 6⅞ | 6⅞ | — ⅜ |
| 64 | 43⅛ | 56½ | 37⅜ | 951,310 | $13.40 | Royal Dutch (N. Y. shares) | $1.3404 | Jan. 31, 31 | 4,900 | 37⅞ | 38¼ | 37¼ | 37¼ | — ⅜ |
| 55⅝ | 43⅜ | 48⅜ | 26 | 77,492 | £2 | Shell Trans. & Trading. | 96.6c | Jan. 23, 31 | ..... | .... | .... | .... | .... | ..... |
| 31¾ | 19 | 25½ | 5⅞ | 13,069,076 | N.P. | Shell Union Oil Corp. | .... | June 30, 30 | 10,100 | 7⅞ | 8 | 7½ | 7½ | — ⅜ |
| .. | .. | 106¼ | 62 | 400,000 | 100 | do pfd. | $1.37½Q | Apr. 1, 31 | 600 | 54 | 55½ | 54 | 55 | + 1⅛ |
| 40¼ | 15 | 37 | 5⅝ | 869,255 | 10 | Simms Petroleum Co. | .... | Sept. 15, 30 | 6,000 | 7⅛ | 8¾ | 7 | 7 | — ⅝ |
| 45 | 21 | 32 | 9¾ | 5,455,665 | N.P. | Sinclair Consolidated Oil Corp. | 25cQ | Jan. 15, 31 | 50,200 | 13 | 13¾ | 11¾ | 11¾ | — 1¼ |
| 111 | 103 | 112¼ | 86 | 154,685 | 100 | do pfd. | $2Q | Feb. 14, 31 | 400 | .... | 103 | 102½ | 102½ | — ½ |
| 46½ | 42 | 42 | 10⅛ | 1,097,650 | $25 | Skelly Oil Co. | 50cQ | Dec. 15, 30 | 4,600 | 9⅛ | 9¼ | 8¾ | 8¾ | — ⅜ |
| .. | .. | 99¾ | 43 | 120,000 | 100 | do pfd. | $1.50Q | Feb. 1, 31 | 1,200 | 46½ | 46½ | 42¼ | 43 | — 4 |
| .. | .. | 106 | 98 | 750,000 | 100 | S. O. Export Corp. pfd. | $2.50S.A. | Dec. 31, 30 | 600 | 103¾ | 103⅞ | 103½ | 103½ | — ½ |
| 81⅞ | 51½ | 75 | 42¼ | 13,016,434 | N.P. | S. O. California. | 62½cQ | Mar. 16, 31 | 38,800 | 45⅝ | 46½ | 43½ | 43¾ | — 1¾ |
| .. | .. | 49 | 14⅜ | 320,000 | $25 | S. O. Kansas. | 25cQ | Mar. 16, 31 | 600 | 15 | 15⅞ | 15 | 15⅜ | — ⅛ |
| 83 | 48 | 84⅞ | 43½ | 25,443,643 | 25 | S. O. New Jersey. | ‡25cQ | Mar. 16, 31 | 86,100 | 45⅝ | 46½ | 43½ | 43½ | — 2⅛ |
| 48⅛ | 31¾ | 40⅜ | 19¾ | 17,809,530 | 25 | S. O. New York. | 40cQ | Mar. 16, 31 | 50,400 | 22⅜ | 22¾ | 21⅝ | 21⅝ | — 1¾ |
| 86⅜ | 55 | 70 | 39 | 1,416,911 | N.P. | Sun Oil Co. | 25cQ | Mar. 16, 31 | 400 | 41 | 41¼ | 41 | 41 | + ½ |
| 105½ | 100 | 107¾ | 97¾ | 100,000 | $100 | do pfd. | $1.50Q | Mar. 2, 31 | 80 | .... | 104 | 103⅞ | 103⅞ | — ⅛ |
| 24 | 5¼ | 9⅜ | ¾ | 1,026,979 | N.P. | Superior Oil Corp. | ..... | ..... | 500 | 1¼ | 1¼ | 1¼ | 1¼ | 0 |
| 71⅞ | 50 | 60½ | 28¾ | 9,850,724 | $25 | The Texas Corp. | 75cQ | Apr. 1, 31 | 72,100 | 30⅛ | 31⅜ | 27⅝ | 27⅜ | — 2½ |
| 23⅞ | 9½ | 14½ | 4 | 929,947 | 10 | Texas Pacific Coal & Oil. | .... | Dec. 31, 29 | 2,900 | 5 | 5⅜ | 4¾ | 4¾ | — ⅛ |
| 23½ | 10 | 17¾ | 5⅞ | 5,881,980 | N.P. | Tide Water Associated Oil. | 30cS.A. | Feb. 16, 31 | 17,000 | 7 | 7¼ | 6⅝ | 6⅞ | — ⅛ |
| 90⅞ | 74⅛ | 89¾ | 56 | 732,550 | $100 | do pfd. | $1.50Q | Jan. 2, 31 | 2,000 | 61 | 61 | 60 | 60 | — 1 |
| 40 | 14 | 31 | 13 | 2,191,820 | N.P. | Tide Water Oil Co. | 20cQ | Dec. 31, 30 | ..... | .... | .... | .... | .... | ..... |
| 97½ | 85⅛ | 94⅞ | 71 | 199,443 | $100 | do pfd. | $1.25Q | Feb. 16, 31 | 500 | 76 | 76 | 70¼ | 70¼ | — 6½ |
| .. | .. | 24 | 12⅛ | 3,339,150 | N.P. | Transcontinental Oil. | .... | May 1, 30 | ..... | .... | .... | .... | .... | ..... |
| 57 | 42⅜ | 50 | 20⅛ | 2,201,008 | $25 | Union Oil Co. (California) | 50cQ | Feb. 10, 31 | 7,000 | 22½ | 23⅛ | 21⅜ | 21⅜ | — ⅞ |
| .. | .. | 38½ | 23 | 1,254,048 | N.P. | Union Tank Car Co. | 40cQ | Mar. 2, 31 | ..... | .... | .... | .... | .... | ..... |
| 42⅞ | 15 | 27 | 4½ | 777,603 | N.P. | Warner Quinlan Co. | .... | July 3, 30 | 700 | 5 | 5 | 4¾ | 4¾ | — ⅛ |
| 38 | 25 | 29½ | 26 | 490,000 | N.P. | White Eagle Oil & Refg. | .... | Apr. 20, 30 | ..... | .... | .... | .... | .... | ..... |
| 29¾ | 12⅞ | 21 | 6½ | 428,967 | N.P. | Wilcox Oil & Gas Co. | .... | May 10, 28 | 10,300 | 8 | 9⅜ | 8 | 8⅝ | + ⅛ |

•New high †New low ‡Also extra s-Stock §From close of preceding week. Total sales 843,440

## Pittsburgh Stock Exchange

**Transactions Week Ended March 27, 1931**

| | Sales | High | Low | Last | Change Over Week |
|---|---|---|---|---|---|
| Ark. Nat. Gas.... | 185 | 6 | 5½ | 5⅝ | — ⅜ |
| do pfd..... | 288 | 7 | 6½ | 6⅝ | — ⅜ |
| Lone Star Gas.... | 4,162 | 23⅛ | 21¾ | 21¾ | —1¼ |
| do pfd..... | 80 | 108 | 107 | 108 | +2 |
| Plymouth Oil.... | 165 | 12½ | 12 | 12 | — ¼ |
| Shamrock O & G.. | 100 | 10 | 10 | 10 | 0 |
| West. Pub. Service | 1,960 | 13 | 12½ | 12¾ | — ¼ |

## Cleveland Stock Market

**March 27, 1931**

| Stock | Bid | Asked | Last Sale |
|---|---|---|---|
| Canfield Oil. | 85¼ | 110 | 85 |
| Fred G. Clark. | 2 | 2 | 4 |
| National Refining. | 18¼ | 19½ | 19¾ |
| do pfd. | 133 | 134 | 134 |
| Paragon Refining. | 1⅛ | .... | .... |
| do vtc. | ⅝ | .... | .... |

## Oil Dividends

| | Amount | Payable | Stock of Record |
|---|---|---|---|
| Indiana Pipe Line q....25c | | May 16 | Apr. 24 |

### California Standard Cuts Crude

SAN FRANCISCO—On March 31 Standard Oil Co. of California reduced prices of California crude in all fields for the third time this month, and to meet cuts posted March 30 by the Union Oil Co., mentioned elsewhere in this issue.

The Standard's reductions ranged from 3 to 35 cents per barrel on crudes in the Los Angeles basin fields, and from 2 to 23 cents on crudes in the San Joaquin Valley fields. The cuts were on high grades. Lower grades were not affected.

The Standard posted 35 cents for Elwood Terrace crude, f.o.b. ship, for oil testing 34 gravity and above, indicating a cut of from 33 to 35 cents on this crude.

Other reductions by the Standard this month have been: 1 to 45 cents, March 20; 5 to 80 cents, March 10.

### Retired S. O. Indiana Official Dies

CHICAGO, March 27.—R. G. Collins, formerly general manager of sales for the Standard Oil Co. of Indiana, died at Washington, D. C., at the age of 82. He has been retired since 1918.

Mr. Collins began his career with the Standard in 1887 at Milwaukee. He came to Chicago in 1907. Funeral services were at Woodlawn cemetery, New York, March 28. He is survived by two sons, Ren Collins of Chicago, and Dr. Charles D. Collins of Washington, and by a daughter, Mrs. Charles W. Ott of Milwaukee.

---

Out of 2,350,000 barrels of lubricating oil imported by the United Kingdom the first 10 months of 1930, the United States furnished 1,822,100 barrels.

## Here's Ideal Market:

### But It's in France

YOUNGSTOWN, O., March 21.—W. E. Talbot, general manager and vice-president of Refiners Oil Co., Dayton, O., has found the ideal market for gasoline marketers, he has written W. H. Loviner, division manager of Refiners, Inc., at Youngstown.

The ideal market, Mr. Talbot wrote, was in a small French town. Gasoline was 48 cents a gallon—United States rating—and only two competitors in the field: Shell and Vacuum.

Mr. Talbot has been touring Europe since his company sold its properties to the Standard Oil Cos. of Ohio, Kentucky and Indiana.

## N. P. N. Ownership Statement

**Statement of the ownership, management circulation, etc., required by the Act of Congress of August 24, 1912, of National Petroleum News, published weekly at Cleveland, Ohio, for April 1, 1931, State of Ohio, County of Cuyahoga.**

**Before me, a notary public in and for the State and County aforesaid, personally appeared A. E. Kraft, who, having been duly sworn according to law, deposes and says that he is the business manager of The National Petroleum Publishing Company and that the following is, to the best of his knowledge and belief, a true statement of the ownership, management, etc., of the aforesaid publication for the date shown in the above caption required by the Act of August 24, 1912, embodied in section 443, Postal Laws and Regulations, printed on the reverse of this form, to-wit:**

1. That the names and addresses of the publisher, editor, managing editor, and business managers are: Publisher, The National Petroleum Publishing Company, Cleveland, Ohio; editor, Warren C. Platt, Cleveland, Ohio; managing editor, V. B. Guthrie, Cleveland, Ohio: and business managers are: A. E. Kraft, Cleveland, Ohio.

2. That the owners are: The National Petroleum Publishing Co., Cleveland, Ohio; Warren C. Platt, Cleveland, Ohio; Bess H. Platt, Cleveland, Ohio; A. W. Brobst, Cleveland, Ohio.

3. That the known bondholders, mortgagees, and other security holders owning or holding 1 per cent or more of the total amount of bonds, mortgages, other securities are None.

4. That the two paragraphs next above, giving the names of the owners, stockholders, and security holders, if any contain not only the list of stockholders and security holders as they appear upon the books of the company, but also, in cases where the stockholder or security holders appears upon the books of the company as trustees or in any other fiduciary relation, the names of the person or corporation for whom such trustee is acting, is given; also that the said two paragraphs contain statements embracing affiants' full knowledge and belief as to the circumstances and conditions under which stockholders and security holders who do not appear upon the books of the company as trustees, hold stock and securities in a capacity other than that of a bona fide owner; and this affiant has no reason to believe that any other person, association, or corporation has any interest direct or indirect in the said stock, bonds or other securities than as so stated by him.

5. That the average number of copies of each issue of this publication sold or distributed, through the mails or otherwise to paid subscribers during the six months preceding the date shown above is (This information is required from daily publications only.)

(Signed) A. E. KRAFT, Business Manager.

Sworn to and subscribed before me this 30th day of March, 1931.

(Signed) H. L. RICHEY, Notary Public.

(My commission expires March 17th, 1933.)

# THE OIL INDUSTRY EXCHANGE

## *Positions Wanted*

WANT CONNECTION with company handling national advertised brand gasoline High No-Knock Value. Brokerage Proposition. Would consider lube oil also. Address Box 686.

ADVERTISING MAN—Six years experience writing newspaper and magazine advertising for three leading oil companies, oil burner and service station equipment manufacturer. Edited house magazine and dealer newspaper for leader in petroleum industry. Now employed as advertising manager of two newspapers. Thirty, married, healthy, making $5200. Will make good advertising manager for marketer or equipment manufacturer. Address National Petroleum News Box 684.

SERVICE STATION MANAGER OR SALES MANAGER desires connection with going concern with future. Will show results if given opportunity. Address Box 687.

NEW CONNECTION DESIRED with large oil company as station manager. Six years experience selling Marland, Texaco, Linco & Standard in Indiana. Best references. Address Box 688.

## *Situations Open*

RESEARCH LABORATORY MAN WANTED

who is experienced in true boiling point and flash vaporization determinations and treating work.

Struthers-Wells Co., Warren, Pa.

## *Patent Attorneys*

**ROYAL E. BURNHAM**
*Attorney-At-Law*
**Patent and Trade-Mark Practice Exclusively**
**Continental Trust Building**
**Washington, D. C.**

## *Professional*

L. G. Huntley J. R. Wylie, Jr.
William J. Millard

**HUNTLEY & HUNTLEY**
**PETROLEUM GEOLOGISTS AND ENGINEERS**

Grant Building PITTSBURGH, PA.

## *Miscellaneous*

**WHAT IT COSTS**

**"For Sale." "Wanted to Buy," "Help Wanted," "Business Opportunities."**

**"Miscellaneous" classifications, set in type this size without border—10 cents a word. Minimum charge, $3.00.**

**"Position Wanted"—5 cents a word. Minimum charge $1.00.**

**Advertisements set in special type or with border—$4.00 per column inch.**

**Copy must reach us not later than Friday preceding date of issue.**

**All advertisements carried on this page are payable in advance.**

## *Wanted to Buy*

**ANTI-KNOCK GASOLINE WANTED**
**Well established New Jersey Company desires connection with Pennsylvania refineries that can supply a good grade Anti-Knock Gasoline.**
**Address Box 679**

## *Business Opportunities*

WELL RATED IOWA CORPORATION, heretofore specializing in distribution well-known line pure Pennsylvania lub oil, desires brokerage connection with high class refinery in group three, making quality gasoline. Six years successful selling operations. Have established many dealer connections which can be swung to reliable refinery. Outline complete details in reply. Address Box 685.

## *For Sale*

TRUCKS TANKS AND METAL PUMP GLOBES FOR SALE

We have for sale three truck tanks, each having two compartments, capacities 400 to 500 gallons, all in good condition. No reasonable offer refused.
Also, forty brand new metal pump globes with glass sides, never been used.

Champlain Valley Oil Company, Inc., Plattsburg, N. Y.

BRAND NEW FIRESTONE VULCANIZING OUTFIT, steam and electric, cost $950. Will sell for $250. Factory guarantee. Write or call Oil City Refineries, 4800 Warner Road, Telephone Diamond 1000, Cleveland, Ohio.

**USED EQUIPMENT FOR SALE**

2—200 H. P. Skinner Engines
8—6 x 60 Bonnot Rotary Kilns
2—6 x 50 Bonnot Rotary Kilns
10—3 x 25 Bonnot Rotary Coolers
6—Orams Double Stave Jointers
7—Orams Stave Equalizing Machines

If interested, Address Mr. J. R. Taylor, Purchasing Agent, Room 2018, 61 Broadway, New York City.

WHILE THEY LAST!

6—Fry 17, 5 gallon pumps.....$30.00 each
2—Fry 70, 10 gallon pumps.....$35.00 each
5—Correct Measure 10 gal. Pumps .....$30.00 each

Prices are crated f.o.b. Erie. We have thoroughly overhauled and painted these pumps. Accuracy guaranteed. Ten gallon pumps pass for Ohio. Glass cylinders polished inside and out, stuffing boxes repacked, pumping unit overhauled, inside parts and screen aluminum. Balance pump newly painted orange, trimmed black.

United Oil Manufacturing Company, Erie, Pa.

# Standard Oil Stocks on New York Curb

| 1929 High | 1929 Low | 1930 High | 1930 Low | Outstanding Shares | Par Value | Companies | Div. Rate | Last Paid | Transactions Week Ended March 28 Sales | First | High | Low | Last | Change§ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 18¾ | 13½ | 18½ | 12¼ | ..... | £1 | Anglo-Amer. Oil voting stk. ctfs.. | ..... | June 5, 29 | ..... | .... | .... | .... | .... | ..... |
| 17⅛ | 11 | 19 | 12 | ..... | £1 | do non-voting stk. ctfs..... | ..... | June 5, 29 | ..... | .... | .... | .... | .... | ..... |
| 2½ | ¾ | 1 | ⅝ | 500,000 | N.P. | Atlantic Lobos Oil..... | ..... | ..... | 600 | ¾ | 1 | ¾ | ¾ | + ¼ |
| 4⅛ | 1 | 1½ | ⅛ | 200,000 | $50 | do pfd..... | ..... | ..... | 1,300 | 2⅜ | 2⅞ | 2 | 2 | — ¼ |
| 46½ | 25 | 25 | 11¼ | 40,000 | 25 | Borne Scrymser Co..... | $1S.A. | Oct. 15, 30 | 50 | 8 | 8 | 8 | 8 | — ¼ |
| 74¼ | 55 | 69 | 39⅛ | 200,000 | 50 | Buckeye Pipe Line Co..... | $1Q | Mar. 14, 31 | 300 | 50 | 51 | 50 | 50 | + 2 |
| 210 | 130 | 184⅞ | 100¼ | 120,000 | 25 | Chesebrough Mfg. Co..... | ‡$1Q | Mar. 31, 31 | 400 | 119½ | 119¾ | 115¾ | 115¾ | — 7¾ |
| 11⅜ | 5⅝ | 7⅝ | 3 | ..... | N.P. | Creole Petroleum Co..... | ..... | ..... | 1,800 | 3 | 3¼ | 3 | 3 | 0 |
| 75⅜ | 40 | 65¾ | 20¼ | 30,000 | $50 | Cumberland Pipe Line Co..... | 50cQ | Mar. 16, 31 | 100 | 25 | 27 | 25 | 27 | + 2½ |
| 70½ | 42 | 54¾ | 26 | 50,000 | 100 | Eureka Pipe Line Co..... | $1Q | Feb. 2, 31 | 250 | 27¼ | 28 | 27¼ | 27½ | — ¼ |
| ... | ... | 6¾ | 2½ | 280,000 | N.P. | Galena Oil Corp. w.i..... | ..... | ..... | 100 | 2 | 2 | 2 | 2 | — ½ |
| ... | ... | 37¼ | 23⅛ | ..... | N.P. | General Petroleum Corp. w.i.... | ..... | ..... | 700 | 22 | 22 | 21¾ | 21¾ | — ¾ |
| 128 | 74½ | 119 | 57¼ | 2,974,645 | $25 | Humble Oil & Refg. Co..... | ‡50cQ | Jan. 1, 31 | 5,100 | 55½ | 57 | 55 | 55⅛ | — ⅛ |
| 41 | 22 | 30 | 15 | 26,490,741 | N.P. | Imperial Oil, Ltd..... | 12½cQ | Mar. 2, 31 | 5,400 | 15⅞ | 16 | 15 | 15⅜ | — ⅜ |
| 42⅛ | 26 | 41 | 14½ | 300,000 | $10 | Indiana Pipe Line Co..... | 50cQ | Feb. 14, 31 | 1,200 | 16⅞ | 17⅛ | 16⅛ | 16⅛ | + ⅛ |
| 29⅜ | 15 | 24 | 11⅜ | 14,247,880 | N.P. | International Petroleum Co..... | 25c | Dec. 15, 30 | 18,700 | 12⅜ | 12⅝ | 11⅞ | 12 | — ⅛ |
| 25⅞ | 10½ | 22⅜ | 11½ | 509,000 | $12½ | National Transit Co..... | 25cQ | Mar. 16, 31 | 3,700 | 15⅛ | 17½ | 15¼ | 17 | + 2½ |
| 17¾ | 10 | 21 | 10¼ | 100,000 | 10 | New York Transit Co..... | 40cQ | Jan. 15, 31 | ..... | .... | .... | .... | .... | ..... |
| 63 | 41 | 54 | 26¼ | 40,000 | 50 | Northern Pipe Line Co..... | $2S.A. | Jan. 2, 31 | ..... | .... | .... | .... | .... | ..... |
| 105½ | 103¾ | 108 | 100⅜ | 600,000 | 100 | Ohio Oil pfd..... | $1.50Q | Mar. 14, 31 | 900 | 99¾ | 100 | 99¾ | 100 | 0 |
| 44½ | 18⅜ | 32 | 12 | 400,000 | 25 | Penn Mex. Fuel Co..... | $1 | Dec. 15, 30 | ..... | .... | .... | .... | .... | ..... |
| 50 | 29 | 33 | 4⅞ | 160,000 | 25 | Solar Refining Co..... | ..... | Dec. 20, 29 | 200 | 8 | 8 | 8 | 8 | + ¼ |
| 23⅛ | 13 | 20⅛ | 6¾ | 100,000 | 10 | Southern Pipe Line Co..... | 50c | Mar. 12, 31 | 100 | 13⅝ | 13⅝ | 13⅝ | 13⅝ | + ¼ |
| 60¼ | 35⅛ | 45⅞ | 18 | 1,200,000 | 25 | South Penn Oil Co..... | 25cQ | Mar. 31, 31 | 700 | 18½ | 18½ | 18½ | 18½ | 0 |
| 70 | 45 | 64 | 32 | 35,000 | 50 | Southwest Pa. Pipe Lines..... | $1Q | Apr. 1, 31 | ..... | .... | .... | .... | .... | ..... |
| 63 | 45 | 59⅞ | 30 | 16,850,587 | 25 | S. O. Indiana..... | 50cQ | Mar. 16, 31 | 43,300 | 32⅜ | 32⅜ | 30⅞ | 30⅞ | — 1⅜ |
| 46⅞ | 29 | 40⅛ | 18⅛ | 2,577,124 | 10 | S. O. Kentucky..... | 40cQ | Mar. 31, 31 | 4,100 | 22⅛ | 22⅛ | 21⅛ | 21½ | — ⅝ |
| 50¾ | 40 | 48⅛ | 34 | 188,159 | 25 | S. O. Nebraska..... | 50cQ | Mar. 20, 31 | 100 | 29¾ | 29¾ | 29¾ | 29¾ | — 2⅛ |
| 129 | 60 | 108½ | 43¼ | 560,000 | 25 | S. O. Ohio..... | 62½cQ | Apr. 1, 31 | 1,200 | 50 | 51 | 49⅜ | 49⅜ | — 1⅝ |
| ... | ... | ... | ... | 120,000 | 100 | do 5% pfd..... | $1.25Q | Jan. 15, 31 | 20 | 105½ | 105½ | 105½ | 105½ | + ¾ |
| 124½ | 113½ | 122 | 115¼ | 70,000 | 100 | do 7% pfd..... | $1.75Q | Dec. 1, 30 | ..... | .... | .... | .... | .... | ..... |
| 18 | 5⅛ | 10 | 4 | 34,158 | 25 | Swan Finch Oil Corp..... | .... | Jan. 15, 29 | ..... | .... | .... | .... | .... | ..... |
| 133¾ | 75⅛ | 97⅛ | 45⅝ | 5,139,887 | 25 | Vacuum Oil Co..... | $1Q | Mar. 20, 31 | 7,400 | 55⅞ | 56¾ | 54⅝ | 54⅝ | — 1¼ |

*New high †New low ‡Also extra §From close of preceding week.

# Independent Oils on New York Curb

| 1929 High | 1929 Low | 1930 High | 1930 Low | Par Value | Companies | Transactions Week Ended March 28 Sales | First | High | Low | Last | Change§ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| .72 | ⅛ | ⅜ | 1/16 | $1 | Amer. Contr. Oilfields | ..... | .... | .... | .... | .... | ..... |
| 8⅛ | 1¼ | 4½ | ⅛ | 5 | Amer. Maracaibo..... | 20,900 | 1⅛ | 1¾ | 1⅛ | 1⅛ | + ¼ |
| 4¾ | 1 | 1⅜ | 1½ | 10 | Argo Oil..... | ..... | .... | .... | .... | .... | ..... |
| 26 | 3¾ | 16¾ | 4⅝ | N.P. | Arkansas Nat. Gas... | 600 | 6 | 6 | 5⅝ | 5¾ | — ¼ |
| 24¾ | 6½ | 16⅜ | 4¾ | N.P. | do Class A..... | 8,600 | 5⅞ | 6 | 5¾ | 5¾ | — ¼ |
| 9 | 4 | 8⅛ | 6¼ | 10 | do pfd..... | ..... | .... | .... | .... | .... | ..... |
| 70 | 50 | 28½ | 13½ | N.P. | British American Oil.. | 10,100 | 1½ | 1¾ | 1¼ | 1¼ | — ¼ |
| 4⅞ | ⅛ | 2¾ | ⅜ | ¼ | Carib Syndicate..... | 196,500 | 20½ | 20½ | 17⅞ | 18⅛ | — 2½ |
| 68½ | 20 | 44¼ | 13⅜ | N.P. | Cities Service..... | 1,000 | 83¾ | 83¾ | 83½ | 83½ | — ¼ |
| 99¼ | 84 | 93⅞ | 52 | 100 | do pfd..... | 1,900 | 7 | 7 | 6¾ | 6¾ | — ¼ |
| 9¼ | 8 | 9 | 7¼ | 10 | do pref. B..... | 100 | 72½ | 72½ | 72½ | 72½ | — 5 |
| 96 | 81 | 89⅞ | 80 | 100 | do pref. BB..... | 1,200 | ¼ | ⅛ | ¼ | ¼ | 0 |
| 1½ | ⅛ | ⅛ | ⅛ | 1 | Colombia Syndicate.. | 100 | 2½ | 2½ | 2½ | 2½ | — ⅛ |
| 15 | 3⅞ | 8¼ | 1⅜ | N.P. | Colon Oil Corp..... | 4,700 | 5⅜ | 5⅝ | 5 | 5 | — ¼ |
| ... | ... | 21 | 3⅜ | N.P. | Columbia Oil & Gas.. | ..... | .... | .... | .... | .... | ..... |
| 11⅜ | 2½ | 5¼ | 2 | 10 | Consolidated Royalty | 100 | 2 | 2 | 2 | 2 | 0 |
| 135 | 42 | 74¾ | 1⅜ | N.P. | Cosden Oil Co..... | 200 | 2⅛ | 2⅛ | 2 | 2 | — ⅛ |
| 87 | 55 | 70 | 10¼ | 100 | do pfd..... | 200 | 7½ | 7½ | 7½ | 7½ | — 7½ |
| 2⅛ | ¼ | 1 | ¼ | N.P. | Crown Central Pet... | 400 | ⅜ | ⅜ | ⅜ | ⅜ | — ⅛ |
| 11½ | 4 | .. | .. | N.P. | Crystal Oil..... | ..... | .... | .... | .... | .... | ..... |
| 51⅜ | 51⅜ | .. | .. | 100 | do pfd..... | ..... | .... | .... | .... | .... | ..... |
| 26 | 6½ | 13½ | 4¼ | N.P. | Darby Petroleum..... | ..... | .... | .... | .... | .... | ..... |
| .. | .. | 21¾ | 21½ | N.P. | do new..... | ..... | .... | .... | .... | .... | ..... |
| 11 | 2 | 11 | 2 | N.P. | Derby Oil & Refg..... | 2,400 | 4½ | 4⅞ | 4¼ | 4¼ | — ⅛ |
| 44 | 17 | 60 | 30 | N.P. | do pfd..... | 400 | 38 | 40⅛ | 38 | 40⅛ | +10⅛ |
| .. | .. | 12 | 12 | 10 | Devonian Oil..... | ..... | .... | .... | .... | .... | ..... |
| 209 | 115 | 166⅞ | 58⅛ | $25 | Gulf Oil Corp..... | 6,000 | 66⅛ | 68½ | 65 | 65 | — 2 |
| 7½ | 1⅛ | 4 | 2¼ | N.P. | Homaokla Oil..... | ..... | .... | .... | .... | .... | ..... |
| .. | .. | 47⅛ | 12¾ | N.P. | Indian Territory A... | 700 | 16½ | 16½ | 16⅛ | 16⅛ | — ⅜ |
| .. | .. | 53½ | 12¾ | N.P. | do B..... | ..... | .... | .... | .... | .... | ..... |
| 2⅞ | ⅜ | 1¾ | ⅜ | 10 | Intercontinental Pet.. | 23,400 | 1/16 | ⅝ | ½ | ⅝ | + 1/16 |
| 3⅝ | 1¼ | 3 | ⅞ | N.P. | Kirby Petroleum..... | 1,900 | 1 | 1 | ¾ | ¾ | — ½ |
| 6⅛ | 1 | 4¾ | ½ | N.P. | Leonard Oil & Dev... | 3,200 | 1¼ | 1¼ | 1 | 1 | — ¼ |
| 38⅞ | 18 | 29 | 5 | N.P. | Lion Oil Refg..... | 200 | 6 | 6 | 5⅞ | 5⅞ | — ⅛ |
| 67⅜ | 28 | 55⅞ | 19⅝ | N.P. | Lone Star Gas..... | 4,800 | 23 | 23 | 21½ | 21½ | — 1½ |
| .. | .. | 31 | 5½ | $25 | MacMillan Petrol..... | ..... | .... | .... | .... | .... | ..... |
| 2⅞ | ¼ | ½ | ⅛ | 1 | Magdalena Synd..... | 2,000 | ¼ | 1/16 | ¼ | 1/16 | — 1/16 |
| 38½ | 14 | 16 | 3 | N.P. | Margay Oil..... | 100 | 3½ | 3½ | 3½ | 3½ | 0 |
| 6⅜ | 2¼ | 7½ | 1¾ | N.P. | Mexico Ohio Oil..... | 700 | 4¼ | 4¼ | 4¼ | 4¼ | 0 |
| .. | .. | 11⅞ | 2¼ | N.P. | Middle States A v.t.c. | 1,200 | 3¼ | 4 | 3¼ | 3¼ | + ⅛ |
| .. | .. | 6 | ¾ | N.P. | do Class B v.t.c. | 600 | 1⅛ | 1⅛ | 1 | 1⅛ | 0 |
| 42 | 8 | 36¼ | 5 | 5 | Missouri-Kansas P.L. | 21,900 | 9⅜ | 9⅜ | 8⅛ | 8⅛ | — 1¼ |
| 1½ | ¼ | ¾ | ⅜ | 1 | Mountain & Gulf Oil.. | 200 | ¼ | ¼ | ¼ | ¼ | — ¼ |
| 22⅞ | 7 | 12⅞ | 4½ | 10 | Mountain Producers.. | 600 | 4½ | 4½ | 4⅜ | 4½ | — ⅛ |
| 43⅞ | 24 | 41⅜ | 19⅞ | N.P. | Nat. Fuel Gas..... | 5,500 | 23¼ | 23⅞ | 23 | 23 | — ½ |
| 5 | 2¼ | 3½ | 1⅛ | $5 | New Bradford Oil.... | 300 | 1¼ | 1¼ | 1¼ | 1¼ | 0 |
| 4¾ | 3⅛ | 3⅛ | 2⅛ | 10 | New England Fuel... | ..... | .... | .... | .... | .... | ..... |
| 24½ | 11⅛ | 16⅞ | 4 | 25 | N. Y. Pet. Royalty... | ..... | .... | .... | .... | .... | ..... |
| 18½ | 6⅛ | 11¼ | 2⅛ | N.P. | North Central Texas | ..... | .... | .... | .... | .... | ..... |
| 19¼ | 8⅛ | 11⅝ | 3⅞ | N.P. | Oilstocks Ltd. A..... | 2,400 | 4⅛ | 4⅛ | 3½ | 3½ | — 1⅜ |
| 18¼ | 8⅛ | 11½ | 4⅜ | N.P. | do B..... | ..... | .... | .... | .... | .... | ..... |
| 26⅜ | 12⅛ | 19½ | 6½ | N.P. | Pacific Western Oil... | 200 | 9½ | 9½ | 9½ | 9½ | — ½ |
| 3½ | ½ | 2½ | ¼ | N.P. | Pandem Oil..... | 7,500 | 1/16 | 1/16 | ¼ | ⅜ | — ⅛ |
| 10½ | 2¼ | 4⅜ | 1 | N.P. | Pantepec Oil..... | 700 | 1½ | 1½ | 1⅜ | 1⅜ | — ⅛ |
| 25½ | 13⅛ | 15 | 13⅛ | $25 | Paragon Refg. B. ctfs. | ..... | .... | .... | .... | .... | ..... |
| 28 | 17 | 29 | 19⅛ | N.P. | Petroleum Corp..... | ..... | .... | .... | .... | .... | ..... |
| .. | .. | 5⅞ | ½ | .... | do warrants..... | ..... | .... | .... | .... | .... | ..... |
| 37 | 22 | 27½ | 16¼ | N.P. | Plymouth Oil..... | 1,700 | 12 | 12⅛ | 12 | 12 | — ¼ |
| 16 | 9 | 10½ | 3 | $5 | Red Bank Oil..... | ..... | .... | .... | .... | .... | ..... |
| 8½ | 1⅛ | 5⅜ | 1 | N.P. | Reiter-Foster Oil..... | 100 | 1¼ | 1¼ | 1¼ | 1¼ | — ⅛ |
| 25¼ | 19 | 23½ | 7 | 25 | Richfield Oil pfd..... | 4,800 | 6¾ | 6¾ | 5¼ | 5¼ | — 1½ |
| 29 | 13 | 25 | 2¼ | N.P. | Root Refining pr. pfd. | ..... | .... | .... | .... | .... | ..... |
| 11 | 3 | 8⅜ | 2 | N.P. | Ryan Consolidated... | ..... | .... | .... | .... | .... | ..... |
| 5⅞ | 1⅞ | 2½ | ⅛ | 10 | Salt Creek Consol..... | ..... | .... | .... | .... | .... | ..... |
| 25⅛ | 9 | 15¼ | 5¼ | 10 | Salt Creek Producers. | 900 | 6½ | 6⅝ | 6¼ | 6½ | — ⅛ |
| 33⅛ | 10 | 8 | 1¾ | 25 | Shreveport El Dorado | ..... | .... | .... | .... | .... | ..... |
| .. | .. | 39⅛ | 39 | 25 | Signal Oil & Gas A... | ..... | .... | .... | .... | .... | ..... |
| 24 | 9 | 17 | 6 | N.P. | Southland Royalty... | 2,900 | 5⅜ | 5⅜ | 5 | 5⅛ | — ¼ |
| 12 | 4 | 10 | 2 | 5 | Sunray Oil..... | 6,800 | 4⅛ | 4⅛ | 3¾ | 3⅞ | 0 |
| 23 | 7⅛ | 19½ | 8 | N.P. | Texon Oil & Land.... | 700 | 10¼ | 9¾ | 9½ | 9½ | — 1 |
| 81⅛ | 8⅞ | 16 | 8 | 10 | Venezuela Mexico.... | ..... | .... | .... | .... | .... | ..... |
| 6½ | 1⅛ | 4½ | ¾ | 5 | Venezuela Petroleum. | 8,200 | 1¼ | 1¼ | 1 | 1 | — ⅛ |
| 9⅛ | 2 | 5 | 2 | 1 | Woodley Petroleum... | ..... | .... | .... | .... | .... | ..... |
| 5⅜ | ¼ | 2½ | ⅜ | N.P. | Y Oil & Gas..... | 1,500 | ¾ | ¾ | ⅜ | ½ | — ¼ |

*New High †New Low §From close of preceding week.

# New York Bonds

**Week Ended March 27**

| | High | Low | Last | Change§ |
|---|---|---|---|---|
| Asso. Oil gold 6s..... | 103⅜ | 103¼ | 103¼ | 0 |
| Atlantic Refg. deb. 5s... | 102⅞ | 102 | 102⅞ | + ⅞ |
| Cal. Pet. 5s..... | 96¼ | 95 | 95 | —1¼ |
| Cal. Pet. 5½s..... | 98½ | 97 | 97 | —3 |
| General Pet. 5s..... | 103 | 102½ | 102½ | — ¼ |
| Humble Oil & Refg. 5s.. | 102½ | 101⅞ | 102 | 0 |
| Humble Oil & Refg. 5½s | 102½ | 102½ | 102½ | + ⅛ |
| Pan Amer. P & T 6s.... | 102 | 101⅝ | 102 | 0 |
| Pan Amer. P & T 6s.... | 64⅞ | 64 | 64 | — ⅛ |
| Phillips Pet. 5⅛s..... | 79 | 75 | 75 | —4 |
| Pure Oil 5½s..... | 91 | 90 | 90 | 0 |
| Pure Oil 5½s..... | 89 | 87 | 87 | —1¼ |
| Richfield Oil of Calif. 6s. | 60½ | 58⅛ | 58⅛ | —1⅞ |
| Shell Union Oil 5s..... | 78½ | 72½ | 73 | —4½ |
| Shell Union Oil 5s with war. | 79¾ | 75¼ | 75¼ | —2⅜ |
| Sinclair Con. Oil 7s..... | 98⅞ | 98⅜ | 98½ | + ⅛ |
| Sinclair Con. Oil 6½s... | 95 | 94½ | 94⅜ | + ⅜ |
| Sinclair Con. Crude 5½s. | 102⅛ | 101¾ | 101⅞ | — ⅛ |
| Sinclair Pipeline 5s..... | 100½ | 99¾ | 99¾ | — ⅞ |
| Skelly Oil 5½s..... | 77 | 76 | 76¾ | + ¼ |
| S. O. N. J. 5s..... | 104 | 103 | 103 | — ⅞ |
| S. O. N. Y. 4½s..... | 100 | 98½ | 99 | — ½ |
| Union Oil of Calif. 6s A.. | 107½ | 106 | 106 | — ⅛ |
| Union Oil of Calif. 5s C.. | 101 | 100⅜ | 100½ | 0 |
| Warner-Quinlan 6s..... | 56 | 54½ | 54½ | —1 |
| White Eagle Oil 5½s.... | 103 | 102½ | 102½ | — ½ |

# New York Curb Bonds

**Week Ending March 27**

| | High | Low | Last | Change§ |
|---|---|---|---|---|
| Beacon Oil 6s '36..... | 98½ | 97½ | 98½ | + ¼ |
| Cities Serv. 5s '66..... | 74 | 72½ | 73½ | 0 |
| Cities Serv. 5s '50..... | 82¾ | 77¾ | 78⅞ | —3¾ |
| Cities Serv. G. 5½s '42.. | 78¾ | 77¾ | 77¾ | —1 |
| Cities Serv. G. P. 6 '43.. | 86½ | 84½ | 86½ | + ¼ |
| Cont. Oil 5½s '37..... | 93⅛ | 93⅛ | 93⅛ | — ⅜ |
| Empire O & R 5½s '42.. | 76 | 75 | 75 | — ⅜ |
| Gulf Oil 5s '37..... | 102½ | 101⅜ | 102½ | + ¼ |
| Gulf Oil 5s '47..... | 103⅛ | 102 | 102 | —1 |
| Indep. Oil 6s '39..... | 95¾ | 89 | 89 | —7¾ |
| Sun Oil 5½s '39..... | 102¼ | 101½ | 102 | — ¼ |

# Oil Company Earnings

| | 1930 | 1929 |
|---|---|---|
| General Asphalt Co..... | $1,006,795 | $1,757,095 |
| Mountain & Gulf Oil Co... | 234,053 | 557,206 |
| New Bradford Oil Co..... | 651,803 | ..... |
| Ryan Cons. Pet. Corp..... | †229,708 | †377,646 |
| Salt Creek Cons. Oil Co... | 574,784 | 611,893 |
| Shreve.-El Dorado P. L. Co. | *768,205 | 68,114 |
| Skelly Oil Co..... | 1,916,871 | 5,786,490 |
| Solar Refining Co..... | *291,031 | *233,063 |
| Standard Oil Co., Ohio.... | 3,724,325 | 4,202,384 |
| Texon Oil & Land Co..... | ‡2,175,799 | ..... |
| H. F. Wilcox Oil & Gas Co. | 602,796 | 518,928 |

*Loss. †Before reserves. ‡Before federal income tax.